

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: P243081

Luminaire Tested: **S121RDR-H490D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243081
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H490D830-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1469.0 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

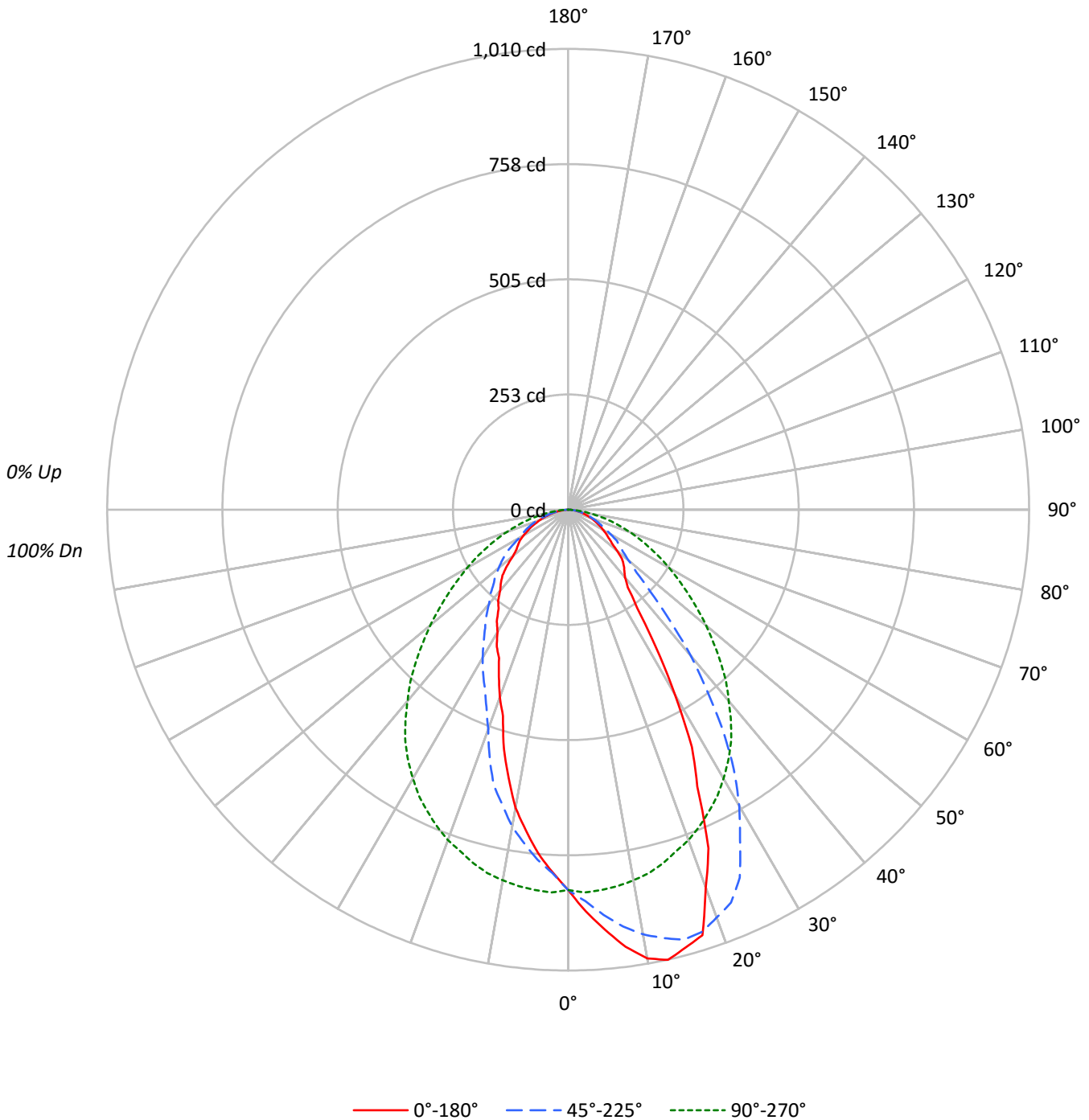
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	24690	24690	24690
5°	27476	24886	22486
10°	30042	24816	19966
15°	30476	24607	16675
20°	27779	24292	13792
25°	21881	23853	11730
30°	15995	23275	10579
35°	9546	22502	9614
40°	7488	21169	8970
45°	7216	19761	8531
50°	6430	18176	7242
55°	5615	16541	6917
60°	5250	15135	6702
65°	4894	13770	6212
70°	4626	12414	5666
75°	4247	11047	5037
80°	3856	8958	4402
85°	3638	6833	3196



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	79.6	5.4
10°-20°	221.9	15.1
20°-30°	295.1	20.1
30°-40°	281.5	19.2
40°-50°	233.6	15.9
50°-60°	173.7	11.8
60°-70°	112.5	7.7
70°-80°	57.3	3.9
80°-90°	14.0	1.0
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°	596.5	40.6
0°-40°	878.0	59.8
0°-60°	1285.3	87.5
0°-90°	1469.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1469.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	833	833	833	833	833	
5°	924	891	837	770	756	90
15°	994	976	802	627	544	277
25°	669	890	730	432	359	311
35°	264	591	622	317	266	180
45°	172	255	472	231	204	131
55°	109	138	320	167	134	99
65°	70	79	196	100	89	70
75°	37	40	96	50	44	39
85°	11	10	20	11	9	12
90°	0	0	0	0	0	



TEST NUMBER: P243081

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3
2.5°	881.0	878.8	881.3	880.4	876.3	877.3	872.2	869.1	861.6	858.7	858.7
5°	923.8	926.9	925.0	925.7	921.6	919.1	913.7	907.7	898.3	891.4	888.9
7.5°	966.5	967.4	968.4	965.9	961.2	956.8	949.2	940.4	930.1	921.3	914.3
10°	998.5	1000.7	999.5	995.7	992.3	985.7	977.5	968.1	956.8	945.1	936.6
12.5°	1010.5	1012.4	1015.2	1013.0	1012.7	1009.5	1001.4	989.7	975.9	961.5	951.7
15°	993.5	992.3	999.8	997.9	997.3	996.0	998.2	995.7	988.5	975.9	964.0
17.5°	977.8	977.2	984.7	986.6	983.8	979.7	977.2	974.0	970.6	970.9	969.3
20°	881.0	900.2	904.0	914.0	935.4	949.5	963.7	963.0	953.0	951.4	950.8
22.5°	803.1	810.3	806.9	823.2	834.8	860.3	885.1	916.5	937.6	932.2	928.8
25°	669.3	691.9	702.3	722.7	752.2	784.6	798.7	832.0	864.4	889.5	908.7
27.5°	586.3	591.3	597.9	619.0	630.0	659.5	712.3	757.6	787.7	815.1	865.6
30°	467.5	469.7	492.7	504.3	536.7	565.6	611.4	647.9	708.5	749.1	788.0
32.5°	356.9	355.1	380.2	393.7	425.7	464.7	515.9	549.9	609.2	675.5	722.0
35°	263.9	263.6	277.1	286.6	321.7	351.6	416.6	460.9	526.0	591.0	651.0
37.5°	214.9	214.6	217.4	225.6	240.4	274.0	305.4	371.1	434.5	498.6	573.7
40°	193.6	195.1	195.8	199.5	204.5	214.6	233.8	279.6	341.9	418.2	493.6
42.5°	182.2	182.2	182.9	183.8	186.3	189.2	200.8	218.4	268.3	329.3	413.8
45°	172.2	172.5	173.1	173.8	173.1	174.7	180.0	187.3	206.7	254.8	336.5
47.5°	160.2	159.9	161.5	162.4	163.7	165.6	165.9	169.7	178.2	203.3	262.7
50°	139.5	139.8	141.4	145.2	149.2	152.7	154.9	157.4	160.2	172.2	203.6
52.5°	120.7	121.0	121.9	124.7	128.5	132.9	139.8	145.5	147.7	151.4	169.0
55°	108.7	108.7	110.0	111.5	112.5	115.6	120.3	126.6	134.8	137.9	145.5
57.5°	98.7	98.7	99.3	99.3	100.5	102.1	105.3	108.4	115.3	125.4	130.1
60°	88.6	88.6	89.2	89.2	90.8	91.4	93.6	95.5	99.3	106.2	115.6
62.5°	79.2	78.6	79.2	79.5	80.4	81.4	83.0	85.1	87.3	91.4	98.3
65°	69.8	69.4	70.1	70.7	71.3	72.6	73.5	75.1	77.0	79.2	82.6
67.5°	61.6	61.3	61.6	62.5	62.2	62.8	64.4	65.0	66.9	69.1	72.0
70°	53.4	52.8	53.4	53.4	53.7	54.7	54.7	56.2	57.8	59.1	61.6
72.5°	44.6	44.9	44.6	44.9	45.6	45.9	46.5	47.4	48.4	49.6	51.2
75°	37.1	37.1	37.4	37.7	38.3	38.3	38.6	39.3	39.9	40.5	42.4
77.5°	29.5	29.8	30.2	30.5	30.5	30.8	31.1	31.4	32.4	32.7	33.6
80°	22.6	22.9	22.9	22.9	23.6	22.9	23.6	24.2	24.2	24.5	25.1
82.5°	16.3	16.7	16.3	16.7	17.0	17.0	16.7	17.0	17.0	17.6	17.6
85°	10.7	10.1	10.1	10.1	10.1	10.1	10.4	10.7	10.4	10.4	10.7
87.5°	4.4	4.4	4.4	4.4	4.7	4.4	4.7	4.7	4.7	4.4	4.7
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°	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3
2.5°	860.3	857.8	855.6	851.8	847.1	840.2	839.2	839.6	831.1	822.9	821.6
5°	883.5	879.5	872.6	864.4	856.8	845.2	840.2	836.7	823.8	812.9	808.5
7.5°	908.4	898.6	889.2	876.3	863.8	848.7	839.2	832.0	815.1	800.6	793.1
10°	927.9	915.9	902.4	886.1	868.8	850.2	836.1	824.8	804.4	786.5	777.0
12.5°	941.7	928.2	912.1	892.7	872.9	848.4	831.1	816.0	791.2	769.8	758.5
15°	948.9	934.4	914.7	893.3	872.9	847.1	824.2	802.2	777.7	751.0	736.8
17.5°	955.5	936.6	914.3	889.8	869.1	842.1	813.8	785.2	757.6	732.4	709.5
20°	950.8	934.8	909.9	884.5	861.2	829.8	800.0	770.4	735.9	706.6	683.7
22.5°	928.8	926.0	899.3	871.9	845.2	815.1	780.5	751.3	714.2	679.6	652.0
25°	903.0	899.6	885.1	855.9	825.7	794.3	763.2	729.6	686.9	651.0	619.3
27.5°	881.3	873.5	863.1	835.8	803.4	772.0	740.0	707.3	661.7	621.8	585.7
30°	837.4	844.9	833.3	814.4	777.0	746.6	715.8	680.3	635.0	589.1	552.1
32.5°	767.6	813.2	801.5	786.5	749.7	716.4	687.2	652.3	602.3	557.1	518.8
35°	706.0	745.3	771.7	753.5	721.1	682.5	652.6	622.1	570.0	523.8	487.0
37.5°	646.3	688.1	732.1	715.4	688.7	647.3	615.8	585.7	537.3	490.8	454.0
40°	568.1	629.0	671.5	678.1	650.7	608.9	578.5	547.3	504.6	458.4	419.2
42.5°	493.0	571.2	605.5	639.4	611.4	572.2	538.2	511.8	470.7	430.1	387.4
45°	414.4	503.4	553.9	580.0	570.0	534.2	497.1	471.6	437.1	399.4	358.8
47.5°	346.3	430.8	503.0	517.8	527.6	492.4	457.8	432.0	402.2	371.1	332.4
50°	274.6	362.3	439.6	466.3	484.8	452.8	416.6	394.3	369.2	341.2	307.0
52.5°	213.7	295.7	376.7	422.3	428.6	411.9	378.6	356.6	336.5	311.4	280.3
55°	169.7	233.1	314.2	367.3	373.3	369.2	339.3	320.2	305.4	284.4	258.3
57.5°	140.8	181.3	254.5	315.8	324.6	328.3	303.8	286.6	273.4	256.7	233.1
60°	121.6	143.0	198.9	258.9	283.1	289.7	268.0	255.4	244.5	229.4	207.4
62.5°	107.5	117.2	152.1	209.9	241.0	246.7	235.7	226.2	217.1	202.7	183.2
65°	89.5	99.9	117.2	162.1	200.5	203.3	205.5	196.4	189.2	177.2	159.9
67.5°	75.1	83.3	94.6	124.4	160.9	169.0	174.7	170.6	163.7	151.8	137.0
70°	63.8	68.5	76.7	93.3	122.9	140.5	146.4	143.3	139.8	126.9	114.4
72.5°	53.1	56.9	61.6	71.6	92.7	111.5	120.3	118.8	115.0	105.3	94.9
75°	44.0	45.6	49.3	55.0	67.2	84.8	95.2	96.5	92.1	83.0	74.8
77.5°	34.6	36.1	38.3	41.8	49.6	61.6	70.1	73.2	70.4	63.8	55.6
80°	26.4	27.3	28.9	30.5	33.6	41.8	50.6	52.5	50.9	45.6	40.5
82.5°	17.6	18.2	19.5	20.7	22.3	26.1	33.6	34.9	34.6	29.8	26.4
85°	10.7	10.7	11.0	11.9	12.6	14.1	18.2	20.1	19.2	16.0	14.5
87.5°	4.4	4.7	4.4	4.4	4.4	4.7	6.0	8.2	6.3	4.7	4.4
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°	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3	833.3
2.5°	818.2	816.9	812.2	807.8	802.8	796.8	797.1	798.1	795.9	795.3	797.5
5°	802.2	797.8	790.5	783.3	777.7	770.1	765.7	767.9	766.3	763.5	761.6
7.5°	785.2	778.9	768.5	759.4	751.9	737.8	734.6	730.8	727.7	721.4	720.2
10°	765.1	756.0	742.8	729.9	716.1	705.1	694.7	690.3	681.8	676.2	674.6
12.5°	744.4	729.3	714.5	695.7	679.9	663.9	654.8	648.5	640.0	626.2	619.6
15°	723.0	700.1	680.3	659.5	648.8	627.2	609.9	590.4	580.0	556.8	543.3
17.5°	694.4	668.0	641.3	624.3	602.0	571.9	542.9	532.9	517.2	502.1	487.0
20°	655.7	631.6	606.1	580.7	546.7	511.8	500.8	483.6	466.3	457.2	449.3
22.5°	620.2	594.2	564.0	530.4	495.5	468.2	453.7	441.1	430.5	422.3	413.2
25°	586.6	559.6	516.6	482.3	451.8	431.7	424.5	408.2	396.8	390.9	383.0
27.5°	549.5	512.5	477.9	442.4	415.4	404.1	387.4	374.5	362.6	351.0	348.1
30°	514.4	473.2	438.9	410.0	390.2	374.5	357.6	342.5	334.6	330.2	323.0
32.5°	479.5	437.7	405.6	383.0	361.7	345.0	329.0	321.1	309.2	299.4	293.2
35°	442.1	405.6	380.2	353.8	333.4	317.0	308.9	291.0	284.4	281.5	274.9
37.5°	409.1	376.7	351.0	330.9	308.6	295.4	279.3	275.2	266.4	258.9	256.7
40°	381.8	351.3	327.1	301.0	287.2	269.9	262.0	251.1	247.9	245.1	240.1
42.5°	351.9	325.8	298.2	280.6	260.2	252.3	240.1	236.9	229.4	226.5	224.7
45°	326.5	302.3	275.9	254.5	242.9	231.3	226.5	218.7	215.2	211.8	208.3
47.5°	301.6	276.5	255.4	235.3	222.5	217.1	208.6	203.0	199.2	195.8	192.3
50°	278.7	253.3	229.7	215.2	206.1	198.6	193.2	188.5	183.2	175.6	167.8
52.5°	253.9	230.9	211.8	197.6	189.5	182.2	177.5	169.4	159.0	150.8	147.0
55°	229.1	207.4	190.7	179.4	173.8	166.8	156.2	144.2	137.6	136.4	135.4
57.5°	208.0	187.6	172.2	163.4	156.8	144.5	133.2	128.8	126.9	126.3	125.7
60°	184.4	166.2	155.2	145.8	134.8	123.2	119.7	119.1	117.2	116.3	115.6
62.5°	162.8	147.0	137.0	125.7	114.1	111.9	109.3	107.8	106.8	104.6	103.7
65°	141.7	129.1	118.1	106.2	102.1	100.5	98.3	96.1	93.6	92.1	90.8
67.5°	121.6	109.3	97.7	93.3	91.1	88.6	85.8	82.6	81.4	79.2	78.9
70°	101.8	90.5	84.2	81.4	77.3	75.1	72.0	70.7	68.5	67.6	66.6
72.5°	83.0	74.8	72.3	68.2	65.4	61.9	60.3	59.1	57.8	56.2	56.2
75°	64.7	62.5	57.8	54.7	51.8	50.0	49.3	47.1	46.8	45.9	45.2
77.5°	51.5	47.1	45.6	42.1	40.2	39.3	38.6	37.4	36.1	35.8	35.5
80°	36.4	34.2	32.4	30.8	29.2	28.6	28.0	27.7	27.0	26.4	26.1
82.5°	23.9	22.6	21.4	20.4	20.1	19.2	18.5	18.2	17.6	17.6	17.6
85°	12.9	12.6	11.9	11.3	10.7	10.7	10.4	10.1	10.1	9.1	9.1
87.5°	4.1	4.1	3.8	3.8	3.1	3.5	3.1	3.1	2.8	3.1	3.1
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: P243081

CATALOG NUMBER: S121RDR-H490D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	833.3	833.3	833.3	833.3
2.5°	794.9	794.9	793.7	794.9
5°	760.4	757.6	756.6	756.0
7.5°	716.4	713.9	711.4	708.8
10°	671.5	667.7	665.5	663.6
12.5°	613.0	608.3	599.5	602.0
15°	541.1	541.4	521.0	543.6
17.5°	482.3	483.9	475.7	474.5
20°	444.9	444.3	441.1	437.4
22.5°	406.6	403.8	402.5	396.5
25°	370.8	365.7	367.3	358.8
27.5°	344.7	340.6	339.3	338.7
30°	318.6	310.1	307.3	309.2
32.5°	292.2	291.6	290.6	291.0
35°	269.9	268.6	265.8	265.8
37.5°	254.5	254.8	253.3	252.0
40°	235.7	234.1	233.8	231.9
42.5°	222.1	219.0	217.7	218.1
45°	206.4	204.5	203.0	203.6
47.5°	187.9	186.0	182.6	181.6
50°	162.8	160.2	158.7	157.1
52.5°	143.9	143.6	143.0	142.6
55°	134.8	133.9	133.9	133.9
57.5°	125.4	124.7	124.4	125.1
60°	115.0	114.4	113.1	113.1
62.5°	102.1	101.5	101.2	99.9
65°	89.2	88.9	88.3	88.6
67.5°	77.3	77.0	77.0	76.0
70°	65.7	65.7	64.7	65.4
72.5°	55.0	54.7	54.7	54.7
75°	44.6	44.3	44.0	44.0
77.5°	35.2	35.2	34.6	34.6
80°	25.5	25.5	25.1	25.8
82.5°	17.0	17.6	17.0	17.0
85°	9.1	9.4	9.4	9.4
87.5°	2.8	2.5	2.5	2.5
90°	0.0	0.0	0.0	0.0

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