

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: P243346

Luminaire Tested: **S123DR-H340D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243346
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H340D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1228.5 lumens
Efficiency: N/A
Efficacy: 109.7 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

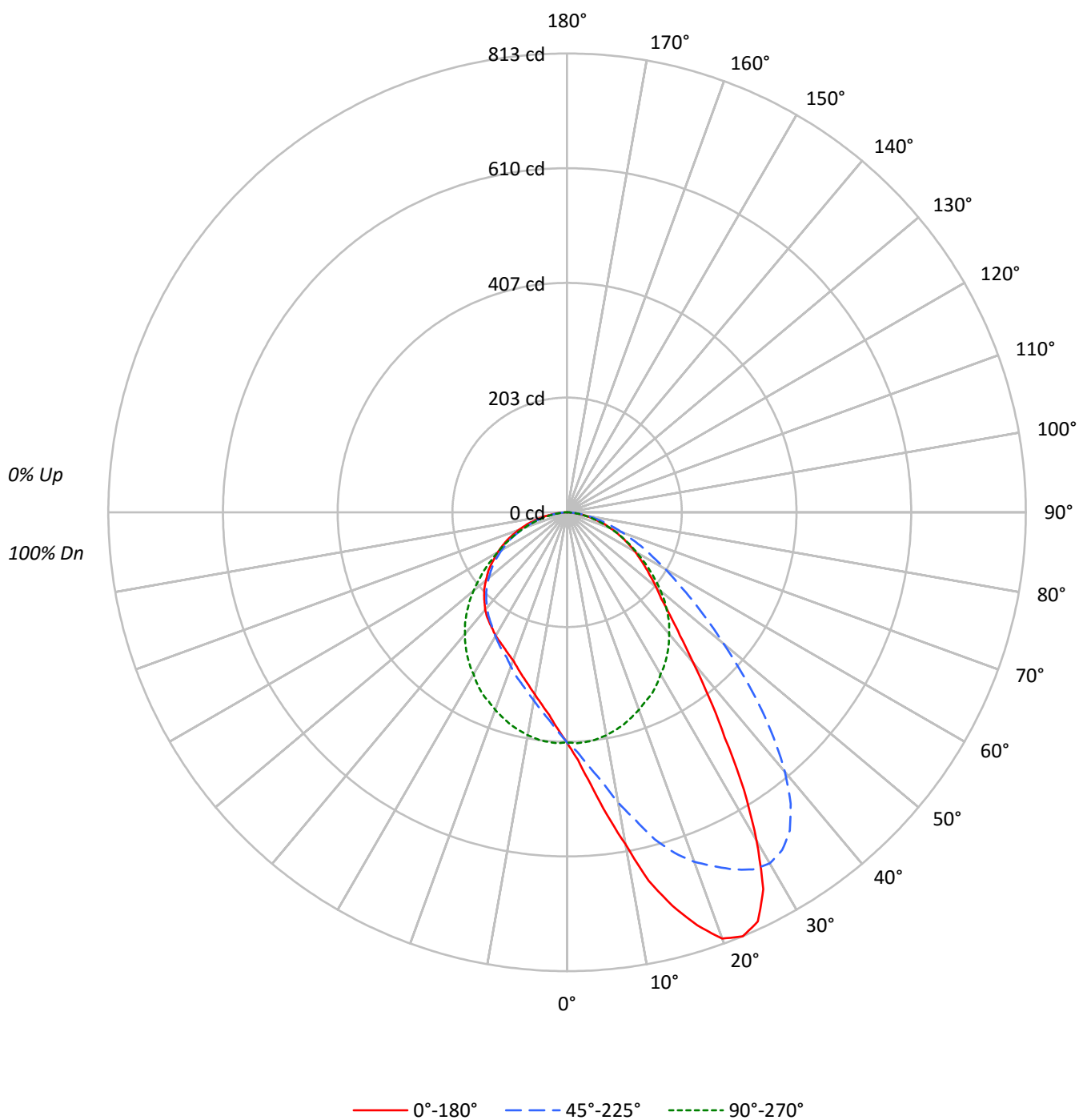
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		100
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85		85
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72		72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62		62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53		53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46		46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41		41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36		36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33		33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	4941	4941	4941
5°	5887	4964	4388
10°	7350	4934	4033
15°	9059	4880	3785
20°	10367	4802	3601
25°	10698	4751	3535
30°	9399	4637	3537
35°	7214	4568	3541
40°	5487	4456	3568
45°	4416	4313	3564
50°	3885	4083	3534
55°	3582	3783	3510
60°	3375	3462	3438
65°	3138	3164	3373
70°	2871	2839	3229
75°	2552	2473	3007
80°	2136	2045	2632
85°	1502	1474	1975

TEST NUMBER: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.1	3.3
10°-20°	128.8	10.5
20°-30°	212.7	17.3
30°-40°	243.4	19.8
40°-50°	220.6	18.0
50°-60°	178.2	14.5
60°-70°	124.2	10.1
70°-80°	65.1	5.3
80°-90°	15.5	1.3
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°	381.5	31.1
0°-40°	624.9	50.9
0°-60°	1023.7	83.3
0°-90°	1228.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1228.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	408	408	408	408	408	
5°	484	452	408	369	361	50
15°	722	600	389	313	302	205
25°	800	698	355	271	264	357
35°	488	688	309	237	239	309
45°	258	481	252	203	208	203
55°	170	270	179	159	166	152
65°	109	147	110	109	118	108
75°	54	67	53	55	64	58
85°	11	14	11	12	14	14
90°	0	0	0	0	0	

TEST NUMBER: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6
2.5°	439.0	439.9	438.4	439.3	437.1	435.8	433.7	432.8	428.3	425.2	424.0
5°	483.8	483.8	484.1	481.9	479.3	474.6	468.5	464.5	460.1	452.4	448.5
7.5°	540.1	537.3	535.5	531.4	527.8	520.2	513.4	505.4	495.0	482.3	475.5
10°	597.2	600.2	598.4	594.1	584.9	572.4	562.5	550.9	534.7	522.4	504.8
12.5°	668.5	664.6	661.6	655.1	645.0	631.8	616.5	599.3	578.4	558.0	538.4
15°	721.9	722.5	722.3	713.7	703.8	685.9	671.7	643.1	616.6	599.5	567.0
17.5°	767.1	769.5	766.7	753.8	745.0	734.4	716.3	684.6	660.5	632.7	596.9
20°	803.7	804.0	799.5	790.0	780.0	768.0	744.1	719.9	696.3	659.0	624.9
22.5°	813.4	814.3	813.4	809.3	801.0	788.3	770.4	748.0	718.4	678.6	646.9
25°	799.9	799.4	802.5	800.1	799.7	795.6	783.9	765.8	736.5	698.2	657.9
27.5°	752.9	749.0	757.0	767.4	768.9	775.5	775.7	767.3	746.2	713.5	669.6
30°	671.5	675.2	679.2	701.0	713.1	730.1	744.9	750.3	742.3	718.2	677.1
32.5°	583.1	595.0	606.0	621.1	638.9	667.6	690.9	711.5	720.2	709.6	677.1
35°	487.5	493.8	511.2	530.4	556.0	578.4	624.7	654.5	681.2	688.1	668.5
37.5°	412.8	418.6	424.6	439.5	468.3	505.6	543.9	583.1	622.6	651.0	649.9
40°	346.8	348.1	353.3	366.2	390.1	423.3	463.4	510.6	562.0	600.6	616.8
42.5°	296.0	296.0	302.5	317.5	331.3	355.5	394.4	436.0	492.2	541.8	576.5
45°	257.6	257.9	263.2	273.8	284.6	303.7	332.4	371.6	429.4	480.8	529.1
47.5°	226.2	229.7	232.7	238.3	249.2	266.0	286.9	320.3	361.5	417.5	473.9
50°	206.0	206.8	209.0	212.4	220.8	231.8	249.9	275.3	311.9	361.5	418.4
52.5°	186.3	186.3	188.5	192.6	197.5	206.4	219.5	240.6	268.0	313.0	364.1
55°	169.5	170.0	170.4	173.8	177.9	184.6	194.8	208.7	233.9	269.9	314.5
57.5°	153.0	155.1	154.5	157.1	160.1	165.0	172.3	184.2	203.4	230.9	271.0
60°	139.2	138.9	139.8	140.9	143.0	146.3	153.0	161.8	177.9	200.8	233.7
62.5°	123.6	123.2	124.3	125.6	127.5	130.3	135.1	141.8	154.5	171.7	200.3
65°	109.4	109.0	109.6	110.3	112.4	114.6	118.3	123.9	132.3	147.4	169.3
67.5°	95.2	95.2	95.6	96.3	97.6	99.3	102.3	105.6	114.0	124.1	141.3
70°	81.0	81.2	81.2	81.9	83.1	84.4	86.8	89.8	95.0	104.0	117.8
72.5°	68.7	68.7	68.3	68.7	69.4	70.0	71.5	74.3	78.2	84.7	95.2
75°	54.5	55.4	55.2	55.1	55.6	56.6	57.9	60.1	62.5	67.2	75.0
77.5°	41.8	42.4	42.4	42.6	43.1	43.9	44.2	46.5	48.7	51.5	57.3
80°	30.6	31.0	30.6	30.8	31.2	31.9	32.7	33.0	34.7	37.1	39.9
82.5°	20.5	20.0	20.7	20.5	20.9	21.1	21.5	21.6	22.8	24.3	26.1
85°	10.8	11.8	11.6	11.9	11.6	11.8	11.9	12.7	12.9	13.8	14.9
87.5°	4.1	4.5	4.5	4.5	4.5	4.5	4.9	5.0	5.4	5.6	6.0
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: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6
2.5°	424.8	423.1	420.7	418.1	415.3	412.5	411.2	409.5	406.1	402.8	400.1
5°	445.3	440.6	434.3	429.6	422.9	416.6	411.5	408.0	402.6	396.0	391.7
7.5°	468.3	459.9	449.8	439.5	429.4	419.9	412.1	405.4	397.0	388.9	382.4
10°	495.3	479.1	465.1	450.2	435.2	421.8	410.6	400.9	390.1	380.4	372.3
12.5°	519.2	500.4	481.0	459.9	439.7	422.4	408.0	395.3	382.2	371.0	362.8
15°	545.5	519.0	492.2	468.3	443.8	422.5	403.7	388.9	374.0	361.3	351.8
17.5°	575.8	540.3	506.5	472.2	450.5	423.1	400.0	380.6	365.2	352.6	340.2
20°	593.7	558.4	517.0	481.7	445.9	417.7	391.9	372.3	354.4	339.9	329.8
22.5°	603.4	566.3	523.0	486.7	444.9	413.4	386.0	362.8	343.6	329.0	317.7
25°	617.0	566.3	526.1	482.6	446.4	408.4	377.4	355.2	335.0	318.2	306.3
27.5°	623.2	571.3	526.5	474.8	437.5	398.8	367.5	344.0	321.6	305.1	294.9
30°	628.2	572.2	519.0	468.6	427.0	388.2	357.6	331.3	310.4	294.7	283.9
32.5°	628.6	569.8	509.0	457.1	413.0	375.7	345.8	321.0	299.2	282.6	271.9
35°	625.2	563.8	497.4	439.3	396.8	362.8	333.0	308.7	286.5	270.6	259.8
37.5°	616.6	557.1	486.6	422.7	377.6	344.5	319.1	296.0	274.0	258.1	249.2
40°	598.4	546.3	472.4	405.0	358.2	325.1	302.9	281.6	262.0	245.6	236.7
42.5°	574.1	530.0	455.2	386.1	336.5	304.6	285.0	267.8	247.9	233.7	224.5
45°	539.8	508.0	438.0	366.4	315.0	283.7	265.8	251.6	234.4	220.2	212.2
47.5°	500.9	481.5	415.8	344.2	292.5	263.0	246.0	234.6	220.0	207.9	199.9
50°	457.3	450.0	391.4	321.8	271.4	241.1	225.5	216.5	204.2	194.5	187.6
52.5°	409.9	414.3	365.6	299.0	251.0	220.4	205.5	197.3	189.4	181.2	174.7
55°	361.7	372.3	334.5	274.2	227.7	201.0	186.4	179.0	173.2	166.3	161.6
57.5°	316.5	333.1	302.2	247.7	206.2	180.7	166.9	160.3	156.0	152.3	148.0
60°	272.7	291.9	268.9	222.8	184.8	161.4	149.1	142.8	140.7	137.9	133.8
62.5°	233.9	253.5	236.3	197.3	163.1	143.1	132.0	126.7	123.7	122.8	120.4
65°	197.5	215.8	202.7	170.6	142.6	124.9	115.0	110.3	108.6	108.4	106.6
67.5°	165.9	183.6	171.7	144.6	120.9	106.6	99.1	95.4	93.7	93.9	92.6
70°	136.8	149.3	142.2	120.9	102.6	90.0	84.2	80.1	78.8	78.8	78.4
72.5°	109.7	119.6	114.2	98.0	83.6	73.9	68.9	66.4	65.3	65.1	65.3
75°	85.9	94.4	89.6	76.9	66.1	58.8	54.5	52.8	52.3	51.9	52.1
77.5°	64.2	69.6	66.6	58.4	49.5	44.4	42.4	40.7	40.1	40.3	40.7
80°	45.4	48.3	46.7	41.4	35.5	32.1	30.6	29.3	28.7	29.3	29.3
82.5°	28.7	31.0	29.5	26.1	23.1	20.9	19.4	19.0	18.9	18.5	19.0
85°	15.7	16.8	16.1	14.9	12.9	11.9	10.8	10.6	10.6	10.6	10.6
87.5°	6.2	6.9	6.0	6.0	5.6	4.7	4.7	4.5	4.3	4.5	4.5
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: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6	407.6
2.5°	399.0	396.6	395.1	393.1	390.6	387.5	386.1	387.5	386.7	385.4	386.0
5°	388.0	384.8	380.7	377.4	373.6	369.0	367.5	366.7	365.6	365.1	364.1
7.5°	377.2	372.5	367.5	362.8	357.4	353.3	351.4	350.1	349.8	347.0	345.8
10°	366.0	360.2	355.2	348.8	344.2	338.7	336.5	335.0	333.3	331.5	330.2
12.5°	354.2	348.4	342.1	336.1	331.5	325.5	322.5	320.8	319.5	318.2	316.7
15°	344.0	338.2	329.4	324.9	319.3	313.4	311.5	307.8	308.1	305.9	304.4
17.5°	333.1	324.6	318.4	311.7	307.6	303.3	299.7	295.8	295.3	293.6	293.0
20°	321.0	312.1	307.8	300.9	295.3	291.0	287.8	287.4	286.3	283.9	282.9
22.5°	309.1	301.8	295.8	289.5	284.4	278.8	277.3	277.9	275.8	275.3	273.2
25°	298.2	291.9	284.4	278.5	274.4	270.8	268.8	268.0	267.3	266.7	265.8
27.5°	286.7	280.0	273.6	268.8	264.8	262.4	261.1	259.4	259.2	259.2	258.9
30°	275.1	269.1	264.8	258.7	255.1	253.6	252.5	252.0	252.5	252.5	252.7
32.5°	264.5	258.7	253.6	249.3	245.8	244.7	244.5	244.5	245.2	245.2	245.8
35°	253.5	247.7	243.0	240.0	237.0	236.8	237.0	237.4	238.3	238.5	239.3
37.5°	241.5	237.0	233.5	229.7	229.0	229.4	229.7	230.1	230.5	232.0	232.0
40°	230.5	227.1	223.6	221.2	219.9	220.8	221.3	221.5	222.7	223.6	224.3
42.5°	219.7	216.5	213.7	211.6	211.1	211.8	212.4	213.0	214.1	214.8	216.1
45°	207.5	205.5	203.1	201.4	201.6	202.7	202.7	204.6	205.3	205.7	206.6
47.5°	196.3	194.1	192.4	191.7	191.5	192.4	193.0	194.5	194.8	196.2	196.9
50°	184.4	182.7	181.4	180.5	180.7	181.0	182.3	183.8	184.2	185.7	187.0
52.5°	171.9	170.4	169.3	169.7	170.2	170.2	171.5	172.5	173.4	174.5	175.8
55°	159.6	157.5	157.7	157.1	157.7	159.0	159.6	161.1	161.8	162.4	164.2
57.5°	146.1	145.8	145.2	144.6	145.8	146.3	147.3	148.2	149.5	150.2	151.5
60°	132.3	131.8	131.8	132.5	132.9	134.0	135.5	136.1	136.4	137.9	139.6
62.5°	119.6	119.1	118.9	120.0	120.0	121.1	121.7	122.6	124.1	124.7	126.9
65°	106.0	105.6	105.6	106.6	106.8	108.8	108.8	108.8	109.7	111.8	112.9
67.5°	91.8	92.0	92.6	93.1	93.9	94.4	94.6	95.7	97.2	98.5	100.8
70°	77.6	78.6	79.7	79.5	80.1	81.0	81.2	82.3	83.6	85.3	87.9
72.5°	64.9	65.5	66.6	66.6	67.4	67.9	68.9	69.6	71.3	72.8	73.9
75°	52.3	52.4	53.4	53.9	54.5	54.9	55.8	57.1	58.0	59.4	61.0
77.5°	41.1	40.7	41.4	41.6	42.0	42.7	43.5	44.8	45.5	47.0	47.6
80°	29.1	29.9	30.0	30.2	30.6	31.5	32.1	32.7	33.4	34.7	35.3
82.5°	19.2	19.6	20.2	20.3	20.7	20.9	21.1	22.0	22.6	23.0	24.8
85°	11.2	11.8	11.4	11.4	11.8	11.9	12.7	12.7	13.4	13.1	14.0
87.5°	4.9	4.7	4.7	4.9	4.7	4.5	5.0	5.0	4.9	5.0	5.0
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: P243346

CATALOG NUMBER: S123DR-H340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	407.6	407.6	407.6	407.6
2.5°	385.0	385.0	383.5	384.1
5°	362.3	363.0	361.1	360.6
7.5°	345.5	344.7	343.4	343.4
10°	329.0	328.3	327.7	327.7
12.5°	314.9	314.1	313.0	313.9
15°	302.2	302.3	301.6	301.6
17.5°	292.5	290.8	290.2	290.0
20°	280.9	281.3	280.5	279.2
22.5°	273.6	272.7	271.9	271.7
25°	266.1	265.2	265.0	264.3
27.5°	258.7	258.9	258.3	258.3
30°	252.5	253.1	252.5	252.7
32.5°	246.4	246.4	246.4	245.6
35°	239.6	239.8	239.6	239.3
37.5°	232.7	232.7	232.9	233.3
40°	225.1	225.1	225.5	225.5
42.5°	215.9	216.9	217.4	216.5
45°	207.7	207.9	208.1	207.9
47.5°	198.6	198.0	198.2	198.6
50°	187.2	188.5	188.5	187.4
52.5°	176.2	176.6	177.3	177.3
55°	165.4	165.5	165.7	166.1
57.5°	153.0	153.2	153.2	153.0
60°	140.7	141.8	141.7	141.8
62.5°	127.5	129.2	129.7	129.5
65°	115.0	115.3	116.3	117.6
67.5°	101.7	102.6	104.1	103.8
70°	88.7	90.0	90.3	91.1
72.5°	75.6	77.3	77.6	78.0
75°	62.9	63.6	64.4	64.2
77.5°	49.1	50.2	51.5	50.8
80°	36.8	37.0	38.1	37.7
82.5°	24.3	25.8	25.8	25.0
85°	14.2	14.2	14.2	14.2
87.5°	4.9	4.7	5.0	4.9
90°	0.0	0.0	0.0	0.0

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