

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: P242487

Luminaire Tested: **S123DR-S560D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242487
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-S560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1994.3 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

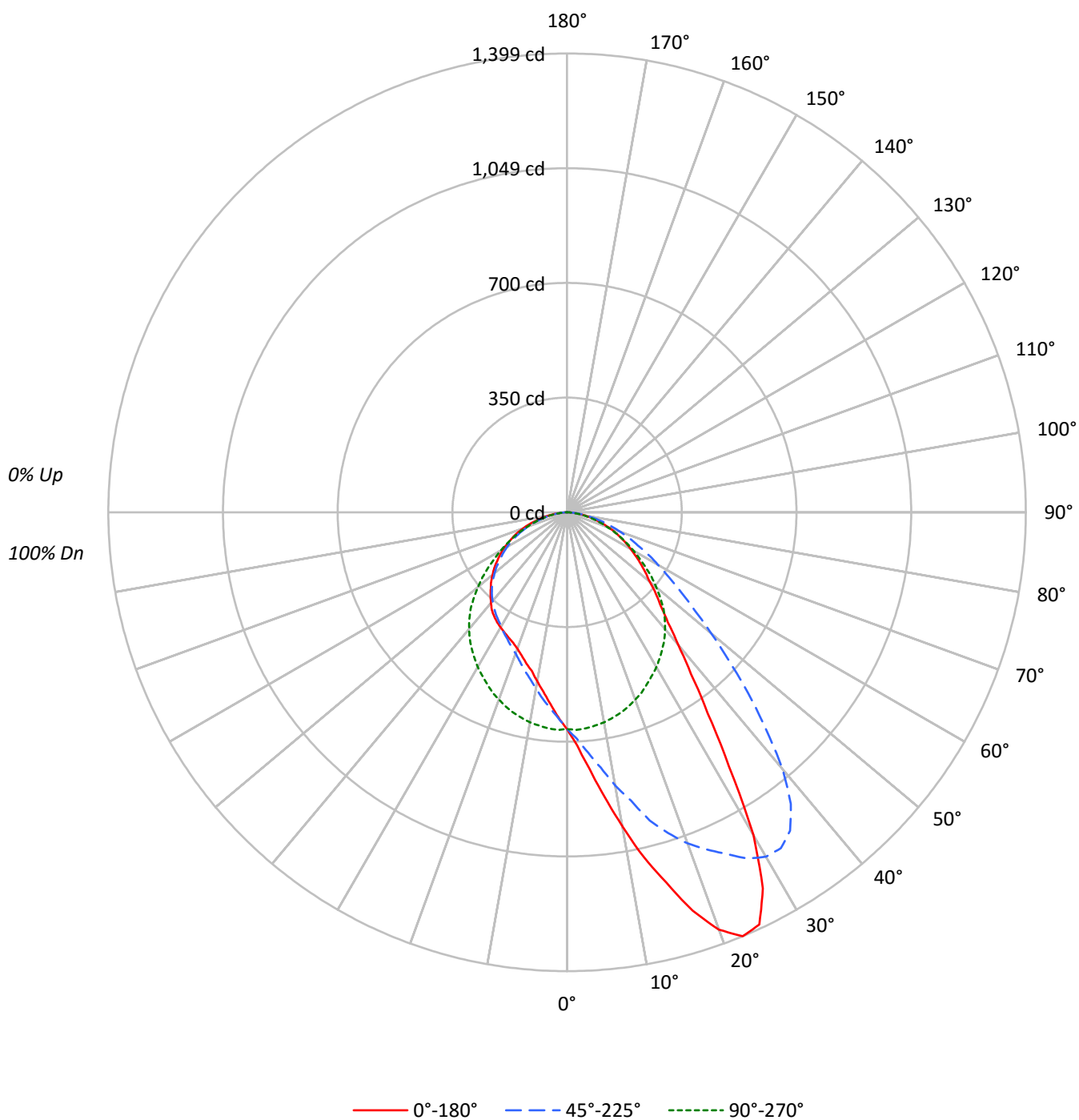
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	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	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53		53
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47		47
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41		41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36		36
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33		33
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29		29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27		27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8008	8008	8008
5°	9550	8044	7128
10°	11955	8003	6438
15°	14662	7938	5993
20°	17467	7838	5707
25°	18547	7716	5643
30°	15897	7625	5673
35°	11057	7499	5731
40°	8328	7350	5714
45°	6915	7128	5641
50°	6193	6677	5589
55°	5790	6190	5520
60°	5433	5680	5464
65°	5105	5177	5289
70°	4788	4607	5036
75°	4290	4032	4618
80°	3755	3309	3979
85°	2934	2406	2670

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.0	3.3
10°-20°	208.7	10.5
20°-30°	351.2	17.6
30°-40°	396.9	19.9
40°-50°	355.5	17.8
50°-60°	286.9	14.4
60°-70°	199.9	10.0
70°-80°	104.9	5.3
80°-90°	25.1	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°	624.9	31.3
0°-40°	1021.8	51.2
0°-60°	1664.2	83.5
0°-90°	1994.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1994.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	661	661	661	661	661	
5°	785	736	661	599	586	81
15°	1168	972	633	499	478	337
25°	1387	1149	577	429	422	613
35°	747	1185	507	379	387	482
45°	403	781	416	324	329	318
55°	274	424	293	250	261	246
65°	178	238	180	170	184	177
75°	92	113	86	86	99	98
85°	21	24	17	17	19	26
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°	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7
2.5°	711.3	710.7	709.1	710.4	707.8	704.3	703.9	700.7	691.5	690.8	688.3
5°	784.9	782.4	782.1	781.7	777.3	771.2	759.7	758.7	743.3	735.6	726.4
7.5°	873.9	873.0	870.4	867.5	852.5	845.1	834.2	820.2	802.2	784.9	774.1
10°	971.3	981.8	968.7	959.7	951.4	935.7	917.5	894.7	872.0	845.4	825.3
12.5°	1075.6	1079.5	1079.5	1071.1	1057.0	1031.1	995.3	969.7	949.2	900.5	883.2
15°	1168.4	1188.0	1175.5	1146.7	1147.3	1124.6	1082.3	1035.9	1011.3	972.5	919.7
17.5°	1273.4	1277.0	1273.1	1246.2	1233.1	1200.1	1162.0	1118.8	1072.4	1025.4	970.6
20°	1354.1	1352.2	1341.0	1328.5	1301.0	1276.6	1234.1	1184.5	1120.4	1074.3	1013.2
22.5°	1398.9	1395.4	1391.6	1381.6	1359.9	1333.3	1296.2	1240.8	1180.6	1112.7	1039.8
25°	1386.8	1390.9	1391.6	1388.7	1380.7	1365.0	1334.9	1291.7	1230.9	1149.2	1075.6
27.5°	1292.7	1303.2	1316.7	1325.6	1340.0	1349.6	1340.0	1312.8	1262.9	1189.9	1099.3
30°	1135.8	1123.0	1154.7	1194.7	1221.9	1269.9	1296.8	1298.4	1273.1	1212.6	1124.9
32.5°	918.1	938.9	948.5	1000.1	1067.6	1123.0	1183.2	1236.6	1249.1	1213.9	1140.0
35°	747.2	764.8	790.4	816.0	880.0	935.1	1029.2	1111.1	1176.5	1185.1	1138.0
37.5°	621.0	631.3	647.0	674.2	718.0	786.2	860.8	967.4	1057.4	1120.7	1114.3
40°	526.3	528.8	547.1	566.6	600.6	654.3	720.0	811.5	924.8	1023.1	1064.1
42.5°	455.2	461.6	466.7	485.3	510.6	547.7	607.6	679.3	780.8	897.6	987.6
45°	403.4	409.8	414.6	427.0	446.3	473.5	516.0	585.2	664.3	781.1	889.0
47.5°	367.5	366.9	371.0	380.9	394.7	416.5	447.9	493.9	569.8	667.5	780.5
50°	328.4	333.6	334.8	342.2	352.5	367.5	392.5	430.2	489.8	573.0	674.8
52.5°	300.9	301.6	305.7	310.5	319.2	330.0	350.9	378.4	421.9	489.8	581.3
55°	274.0	274.0	277.5	281.7	286.8	297.4	311.8	333.6	369.1	424.2	501.6
57.5°	249.1	250.3	253.5	254.5	259.0	266.3	278.8	296.1	323.3	367.8	431.8
60°	224.1	227.0	226.6	229.2	233.0	238.5	248.7	262.2	285.9	319.8	371.7
62.5°	202.3	201.4	201.4	204.6	208.4	213.5	219.3	230.5	249.7	278.8	321.1
65°	178.0	177.3	179.6	181.5	182.8	186.6	191.8	202.0	215.4	237.9	272.1
67.5°	156.9	154.9	156.5	157.2	159.4	162.6	167.7	174.1	185.0	203.9	231.4
70°	135.1	133.5	133.2	133.8	135.7	138.0	141.5	147.6	157.5	171.9	190.8
72.5°	112.7	111.7	111.7	113.3	114.0	115.2	117.5	122.9	130.3	140.2	157.5
75°	91.6	91.6	91.6	91.9	92.8	94.1	96.0	98.9	105.0	112.7	124.5
77.5°	72.3	72.7	72.0	71.7	73.3	73.9	74.3	77.5	81.0	86.8	96.0
80°	53.8	52.2	52.8	53.8	54.4	54.7	55.7	56.3	59.2	62.1	68.2
82.5°	36.5	35.2	35.2	36.8	36.8	37.1	38.1	39.1	39.7	42.3	44.8
85°	21.1	21.1	21.4	21.4	21.8	21.4	22.4	22.7	22.7	24.3	26.3
87.5°	9.6	9.0	9.3	9.6	9.3	9.6	9.9	10.2	10.6	10.9	11.2
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°	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7
2.5°	686.3	683.8	681.2	676.7	672.9	667.5	665.9	663.9	658.2	653.1	649.2
5°	722.8	715.2	703.9	693.7	685.4	674.2	667.8	661.1	651.4	642.8	635.8
7.5°	757.7	744.3	728.6	711.6	695.3	679.6	667.1	655.9	643.4	631.3	622.0
10°	800.9	779.2	754.8	728.6	706.2	684.4	666.2	650.2	632.9	617.8	605.4
12.5°	850.2	815.4	779.5	746.2	718.7	686.3	663.3	641.8	621.7	602.8	588.4
15°	887.1	846.1	806.4	762.5	722.2	684.4	658.2	632.6	609.8	591.3	573.3
17.5°	923.6	878.7	828.2	775.3	728.0	684.4	648.6	621.0	593.2	570.8	553.5
20°	953.6	900.8	841.6	786.2	732.4	682.5	642.2	607.6	576.9	552.9	532.7
22.5°	979.6	915.6	853.8	793.6	732.1	677.4	630.3	594.5	560.5	537.2	515.4
25°	995.9	922.0	860.5	791.0	724.1	668.4	617.2	576.9	543.6	516.0	493.9
27.5°	1011.3	921.0	851.5	776.6	714.5	659.1	604.1	560.9	526.0	496.2	473.5
30°	1026.6	922.6	835.8	761.9	699.1	641.5	588.4	544.8	507.7	477.3	456.2
32.5°	1036.2	921.6	821.4	741.4	674.8	625.5	571.4	526.0	487.5	457.8	437.6
35°	1038.8	916.2	804.5	711.6	648.2	598.6	553.5	506.8	466.7	438.9	415.8
37.5°	1033.4	906.3	785.9	684.7	616.2	566.9	527.6	487.5	449.1	418.1	397.9
40°	1015.7	896.7	763.5	655.9	582.9	535.9	503.6	464.5	426.7	397.6	379.0
42.5°	982.1	877.1	738.8	623.9	548.4	501.3	472.2	441.1	405.9	379.0	360.5
45°	923.2	847.0	714.2	591.9	514.4	465.8	439.5	415.8	383.5	356.9	340.9
47.5°	848.0	806.4	678.7	558.3	478.9	431.8	404.3	384.8	359.5	338.0	322.4
50°	768.9	753.9	642.5	523.7	443.4	397.6	371.3	354.1	337.1	315.6	301.6
52.5°	677.7	693.1	600.2	487.9	407.2	362.4	338.0	325.2	310.2	293.6	281.7
55°	593.2	626.8	550.3	446.9	371.3	328.4	305.1	292.9	283.9	270.8	260.3
57.5°	511.2	554.1	498.4	405.6	336.1	298.7	275.6	261.9	256.1	248.7	240.1
60°	439.8	482.1	442.1	364.0	300.6	265.4	245.5	234.3	228.6	223.8	216.7
62.5°	376.1	419.0	387.0	321.7	265.7	233.7	217.0	206.2	202.0	200.1	194.3
65°	318.8	355.7	333.2	277.5	232.7	203.9	188.2	180.5	176.4	175.4	171.6
67.5°	269.2	297.7	280.4	238.5	202.0	175.7	162.0	155.3	151.7	151.4	148.2
70°	220.6	246.8	234.3	197.2	166.8	147.3	135.7	130.0	128.0	127.7	126.1
72.5°	182.8	199.1	189.8	160.4	138.6	121.3	113.6	107.6	105.3	106.0	105.0
75°	140.9	154.6	148.9	127.4	108.5	97.0	90.0	86.1	84.2	85.2	83.9
77.5°	107.6	117.2	111.4	95.1	82.9	74.3	68.8	66.3	64.3	64.3	63.7
80°	76.5	81.6	78.8	69.8	60.2	53.1	49.0	47.4	46.4	46.1	45.8
82.5°	49.0	53.1	49.6	44.2	38.4	34.9	33.0	30.7	30.1	30.4	30.1
85°	27.5	29.1	27.9	24.0	21.4	19.5	18.2	17.3	16.6	17.0	16.3
87.5°	11.8	12.2	11.2	9.9	9.3	8.3	8.3	7.7	7.0	7.0	6.7
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7
2.5°	647.0	644.7	641.5	636.7	632.9	626.8	626.8	627.8	627.8	627.4	626.8
5°	630.0	625.2	619.4	612.7	605.7	598.6	597.3	594.8	592.9	591.6	590.0
7.5°	612.7	604.7	596.7	587.4	579.4	572.7	567.9	563.7	561.2	558.3	556.1
10°	595.1	584.5	574.6	564.7	553.8	545.2	539.7	535.9	533.0	530.4	529.2
12.5°	574.3	561.8	550.6	541.3	529.2	520.2	515.1	513.8	510.3	504.2	501.0
15°	554.1	542.9	529.8	515.4	509.6	498.8	492.7	489.8	487.9	483.7	482.4
17.5°	537.5	522.4	507.4	496.8	486.3	477.6	474.1	470.3	467.7	463.9	462.9
20°	516.7	503.6	490.1	478.6	467.4	457.8	454.9	452.3	449.8	448.2	446.9
22.5°	495.6	482.4	471.9	461.3	449.1	443.7	440.5	437.6	436.0	435.0	433.8
25°	476.0	464.5	452.0	442.4	432.8	428.6	426.7	425.1	423.8	422.2	421.9
27.5°	458.7	445.9	435.4	426.1	419.0	415.5	413.3	412.3	412.3	413.0	413.3
30°	438.9	427.4	419.0	411.4	405.0	401.8	401.4	401.4	402.7	403.0	403.7
32.5°	420.6	411.7	403.4	396.0	391.5	389.6	391.2	391.2	392.2	393.1	394.4
35°	403.0	394.7	388.3	381.9	377.7	378.7	379.3	380.0	381.6	383.5	384.8
37.5°	386.4	378.7	372.0	366.9	364.3	366.2	367.8	369.1	371.0	372.6	373.9
40°	368.1	362.7	356.3	351.8	352.5	353.4	354.7	356.3	357.9	358.9	360.1
42.5°	351.2	345.4	340.9	337.4	338.4	339.7	340.3	340.9	342.9	344.8	345.4
45°	333.9	329.4	324.9	322.7	323.3	324.0	324.6	325.6	327.2	328.4	328.8
47.5°	314.4	311.2	308.3	305.7	307.0	306.7	307.6	309.6	310.2	310.8	312.8
50°	295.8	292.9	289.4	288.8	288.8	288.8	289.1	291.6	291.6	292.9	294.2
52.5°	275.3	273.7	271.8	270.5	269.9	269.9	271.5	272.4	273.1	275.0	276.3
55°	255.1	253.2	251.3	250.3	249.7	250.3	252.9	253.5	255.1	256.1	257.1
57.5°	234.0	232.7	231.1	230.5	230.5	230.8	232.7	234.3	234.6	237.9	239.1
60°	213.2	211.0	209.7	209.7	209.0	211.9	211.3	214.5	215.1	217.0	219.3
62.5°	191.8	188.6	188.2	188.2	189.5	189.8	191.1	192.1	194.0	196.6	198.2
65°	168.4	166.8	169.0	168.7	168.1	170.0	170.0	171.6	173.5	175.7	179.3
67.5°	146.6	145.3	146.0	145.7	146.6	147.9	148.9	150.1	152.4	154.9	157.2
70°	124.5	125.5	123.9	125.2	126.1	126.4	127.1	129.0	131.6	133.2	135.7
72.5°	103.1	102.8	103.4	103.7	104.7	105.3	106.0	108.2	111.1	112.4	114.3
75°	82.6	82.3	83.2	83.2	84.8	85.5	86.1	87.1	89.6	91.6	93.2
77.5°	64.0	64.3	64.0	65.3	64.7	65.0	66.9	67.9	68.2	72.3	73.0
80°	45.5	46.1	46.4	46.7	47.1	46.4	48.7	49.6	49.6	51.9	53.5
82.5°	29.5	29.8	30.7	31.1	31.1	32.0	31.7	32.3	33.3	33.9	36.2
85°	16.3	17.3	17.6	17.3	17.6	17.0	17.9	18.2	18.6	18.6	18.6
87.5°	6.4	6.7	6.4	6.7	6.4	6.7	6.7	6.1	6.1	7.0	5.8
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: P242487

CATALOG NUMBER: S123DR-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	660.7	660.7	660.7	660.7
2.5°	624.6	624.2	626.5	624.9
5°	588.1	589.0	585.8	585.8
7.5°	555.1	553.8	554.1	551.9
10°	525.3	523.4	522.8	523.1
12.5°	500.7	500.7	495.6	495.6
15°	482.4	476.3	475.7	477.6
17.5°	462.3	458.7	459.1	458.4
20°	446.9	445.0	444.7	442.4
22.5°	432.8	432.5	432.8	430.2
25°	421.6	423.2	421.9	421.9
27.5°	413.9	413.9	413.0	413.0
30°	405.0	404.6	405.3	405.3
32.5°	396.0	396.6	396.6	397.0
35°	386.7	387.0	388.0	387.3
37.5°	374.5	376.1	375.8	376.5
40°	360.5	361.4	361.1	361.1
42.5°	346.1	346.7	345.7	345.1
45°	330.0	329.4	330.4	329.1
47.5°	312.4	312.8	313.1	314.4
50°	294.8	296.8	296.8	296.4
52.5°	277.5	278.2	279.8	279.8
55°	259.6	260.3	260.9	261.2
57.5°	241.4	241.1	242.3	242.7
60°	221.8	221.8	224.4	225.4
62.5°	201.0	202.3	204.9	203.0
65°	180.9	183.4	183.1	184.4
67.5°	159.7	161.3	163.9	163.9
70°	138.3	139.9	141.2	142.1
72.5°	117.5	118.1	121.6	119.7
75°	95.4	97.6	99.6	98.6
77.5°	74.3	77.1	77.8	76.8
80°	55.7	55.4	57.3	57.0
82.5°	37.1	36.8	37.5	37.8
85°	19.8	20.8	19.5	19.2
87.5°	5.8	5.8	5.4	5.1
90°	0.0	0.0	0.0	0.0

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