

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: P332405-940

Luminaire Tested: **S123RDIW-S340D1320U940-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332405-940  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-9,  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123RDIW-S340D1320U940-4F0-1E-UDD-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER, REGRESSED  
HOUSING  
UPLIGHT 1320 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5240.8 lumens  
Efficiency: N/A  
Efficacy: 112.5 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.06 / 1.22  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

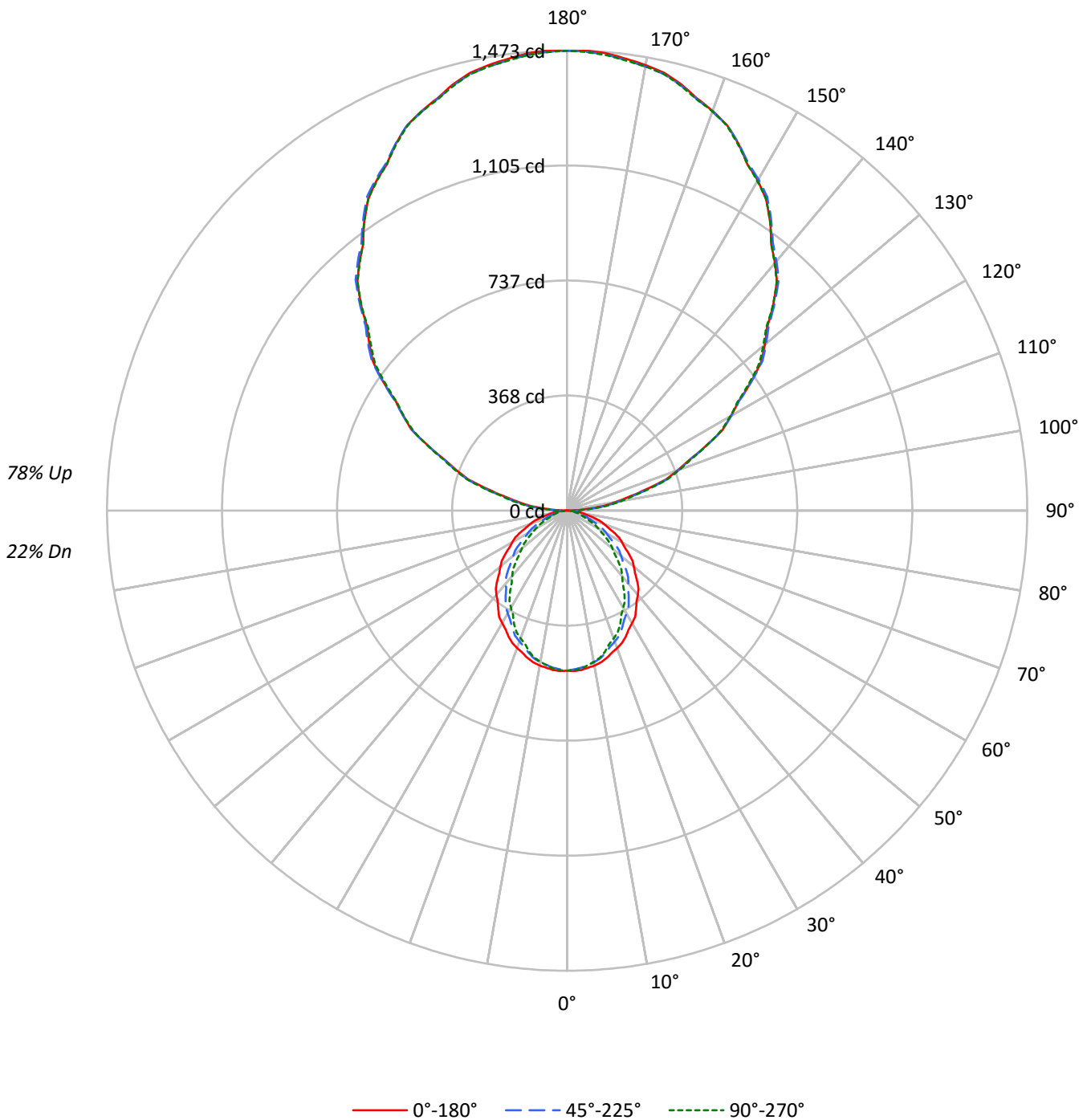
Input Watts (W): 46.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	101	101	101	101	89	89	89	89	68	68	68	48	48	48	31	31	31	22
1	92	88	84	81	81	78	75	72	59	58	56	43	41	40	27	27	26	19
2	84	77	71	66	74	68	63	59	52	49	46	38	36	34	24	23	22	16
3	76	67	60	55	67	60	54	50	46	42	39	33	31	29	21	20	19	14
4	70	60	52	46	62	53	47	42	41	37	33	30	27	25	19	18	16	12
5	64	53	45	40	56	47	41	36	37	32	29	27	24	21	17	16	14	10
6	59	47	40	34	52	42	36	31	33	28	25	24	21	19	16	14	13	9
7	54	43	35	30	48	38	32	27	30	25	22	22	19	16	14	13	11	8
8	50	38	31	26	44	35	28	24	27	22	19	20	17	15	13	11	10	7
9	47	35	28	23	41	31	25	21	25	20	17	18	15	13	12	10	9	7
10	43	32	25	21	38	29	23	19	23	18	15	17	14	12	11	9	8	6

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	5514	5514	5514
5°	5535	5459	5491
10°	5503	5391	5372
15°	5446	5264	5209
20°	5363	5108	4987
25°	5280	4930	4772
30°	5169	4724	4467
35°	5056	4520	4188
40°	4950	4279	3842
45°	4813	4042	3529
50°	4662	3771	3178
55°	4506	3462	2852
60°	4366	3130	2495
65°	4182	2774	2137
70°	3950	2326	1725
75°	3614	1834	1626
80°	3217	1624	1494
85°	2717	1433	1334



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	48.1	0.9
10°-20°	133.9	2.6
20°-30°	192.7	3.7
30°-40°	217.1	4.1
40°-50°	207.7	4.0
50°-60°	170.1	3.2
60°-70°	114.8	2.2
70°-80°	57.7	1.1
80°-90°	19.6	0.4
90°-100°	95.9	1.8
100°-110°	287.1	5.5
110°-120°	488.2	9.3
120°-130°	642.2	12.3
130°-140°	721.9	13.8
140°-150°	709.6	13.5
150°-160°	597.3	11.4
160°-170°	397.6	7.6
170°-180°	139.2	2.7
0°-30°	374.7	7.1
0°-40°	591.8	11.3
0°-60°	969.6	18.5
0°-90°	1161.7	22.2
90°-120°	871.3	16.6
90°-150°	2944.9	56.2
90°-180°	4079.0	77.8
0°-180°	5240.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	512	512	512	512	512	
5°	512	510	505	509	508	49
15°	489	484	472	470	467	138
25°	445	434	415	407	402	204
35°	385	369	344	327	319	241
45°	316	297	266	243	232	244
55°	240	219	184	161	152	215
65°	164	141	109	89	84	162
75°	87	67	44	40	39	93
85°	22	13	12	11	11	25
90°	1	13	28	32	35	5
95°	68	76	86	90	90	77
105°	260	263	273	273	275	279
115°	492	495	493	494	493	486
125°	719	723	720	716	711	641
135°	933	940	939	935	932	719
145°	1132	1135	1138	1137	1132	707
155°	1296	1297	1298	1302	1294	597
165°	1412	1409	1409	1415	1408	398
175°	1469	1464	1464	1470	1463	139
180°	1472	1472	1472	1472	1472	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	512.3	512.3	512.3	512.3	512.3	512.3	512.3	512.3	512.3	512.3	512.3
2.5°	514.0	513.6	513.4	513.1	512.8	512.2	511.3	510.4	509.5	508.6	509.4
5°	512.3	511.8	511.4	511.0	510.4	509.7	508.5	507.5	506.3	505.2	506.0
7.5°	507.6	507.0	506.6	506.0	505.6	504.6	503.2	501.8	500.2	498.8	499.3
10°	503.5	502.9	502.3	501.7	501.0	499.8	498.2	496.5	494.8	493.2	493.3
12.5°	497.9	497.2	496.5	495.8	495.1	493.7	491.6	489.6	487.6	485.5	485.4
15°	488.7	487.6	486.6	485.5	484.6	482.8	480.2	477.6	475.0	472.4	472.0
17.5°	476.9	475.7	474.6	473.3	472.2	469.9	466.6	463.3	460.1	456.8	455.8
20°	468.2	466.8	465.3	463.9	462.4	459.9	456.4	452.8	449.3	445.9	444.6
22.5°	458.6	456.9	455.2	453.5	451.8	449.2	445.4	441.7	437.9	434.2	432.7
25°	444.6	442.3	440.0	437.7	435.3	432.0	427.8	423.6	419.3	415.1	413.1
27.5°	427.6	425.0	422.4	419.9	417.3	413.8	409.0	404.2	399.5	394.8	392.1
30°	415.9	413.1	410.4	407.6	404.8	400.8	395.7	390.5	385.3	380.1	377.0
32.5°	404.3	401.1	398.0	394.8	391.7	387.4	381.9	376.5	371.0	365.5	362.1
35°	384.8	381.4	378.1	374.8	371.5	366.9	361.2	355.4	349.7	344.0	340.1
37.5°	365.0	361.2	357.6	353.9	350.2	345.3	339.2	333.1	327.0	320.8	316.4
40°	352.3	348.3	344.2	340.2	336.1	330.7	324.2	317.6	311.1	304.5	299.8
42.5°	338.0	333.9	329.9	325.8	321.8	316.4	309.6	302.8	296.0	289.3	284.0
45°	316.2	312.0	307.9	303.7	299.5	293.9	286.9	279.7	272.6	265.5	260.2
47.5°	294.4	289.8	285.2	280.6	276.1	270.3	263.1	256.0	249.0	241.8	236.1
50°	278.4	274.0	269.7	265.4	261.0	255.1	247.6	240.1	232.6	225.2	219.5
52.5°	264.1	259.4	254.7	249.9	245.2	239.2	231.8	224.4	217.0	209.6	203.7
55°	240.1	235.6	231.1	226.6	222.0	215.9	208.0	200.2	192.3	184.5	179.1
57.5°	218.0	213.1	208.2	203.2	198.3	191.9	184.0	176.1	168.3	160.4	155.3
60°	202.8	197.7	192.6	187.5	182.4	176.1	168.4	160.8	153.1	145.4	140.4
62.5°	187.4	182.4	177.3	172.3	167.2	160.8	153.1	145.4	137.8	130.1	125.5
65°	164.2	159.1	154.0	148.9	143.8	137.7	130.5	123.2	116.1	108.9	104.3
67.5°	140.8	135.6	130.5	125.4	120.2	114.2	107.3	100.4	93.5	86.6	83.2
70°	125.5	120.5	115.5	110.5	105.6	99.8	93.4	86.9	80.4	73.9	70.7
72.5°	110.2	105.3	100.4	95.4	90.5	85.2	79.3	73.4	67.5	61.6	59.0
75°	86.9	82.4	77.9	73.6	69.1	64.4	59.3	54.2	49.1	44.1	43.2
77.5°	65.5	61.5	57.5	53.5	49.6	45.9	42.6	39.3	36.1	32.8	32.4
80°	51.9	48.2	44.4	40.6	36.8	34.0	32.0	30.1	28.1	26.2	25.9
82.5°	39.0	35.7	32.5	29.2	25.9	23.8	22.9	22.0	21.1	20.2	19.9
85°	22.0	20.0	17.9	16.0	13.9	12.8	12.5	12.2	11.9	11.6	11.4
87.5°	8.2	7.9	7.6	7.3	7.0	7.2	7.8	8.6	9.2	9.9	10.0
90°	1.2	3.7	6.3	8.8	11.4	14.4	17.7	21.0	24.4	27.7	28.8
92.5°	28.0	29.7	31.5	33.3	35.0	36.8	38.7	40.6	42.5	44.4	45.2
95°	68.2	70.0	71.9	73.7	75.4	77.4	79.5	81.5	83.6	85.6	86.6
97.5°	121.2	122.5	123.9	125.2	126.5	128.0	129.5	130.9	132.4	133.9	135.1
100°	157.3	158.8	160.3	161.9	163.5	164.9	166.1	167.5	168.7	170.0	170.8
102.5°	198.9	199.8	200.8	201.7	202.6	203.9	205.6	207.3	209.0	210.7	211.5
105°	260.2	260.7	261.3	261.7	262.3	263.7	266.0	268.3	270.6	273.0	273.0
107.5°	331.4	331.8	332.1	332.4	332.7	333.3	334.2	335.2	336.1	337.0	337.9
110°	375.9	376.4	376.9	377.4	377.9	378.4	379.0	379.5	380.0	380.5	381.6



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	422.1	422.4	422.8	423.0	423.4	423.6	423.7	423.7	423.9	424.0	425.3
115°	491.5	492.3	493.0	493.8	494.6	494.7	494.2	493.7	493.2	492.7	492.9
117.5°	561.4	561.9	562.4	562.9	563.5	563.4	562.7	562.0	561.3	560.7	560.6
120°	604.8	606.4	608.0	609.5	611.0	611.2	609.8	608.6	607.3	606.0	605.7
122.5°	650.2	651.3	652.5	653.6	654.7	655.0	654.2	653.6	652.9	652.3	651.6
125°	719.3	720.1	720.9	721.7	722.5	722.6	722.0	721.6	721.0	720.5	719.5
127.5°	783.2	784.9	786.5	788.1	789.8	790.3	789.8	789.2	788.6	788.1	786.6
130°	825.7	827.8	829.9	832.0	834.0	834.6	833.8	833.1	832.3	831.5	830.5
132.5°	868.3	870.4	872.4	874.5	876.6	877.3	876.7	876.2	875.6	875.0	873.8
135°	933.4	934.9	936.4	937.9	939.5	940.1	939.9	939.6	939.3	939.1	938.1
137.5°	993.5	994.7	996.0	997.3	998.6	999.6	1000.2	1000.9	1001.6	1002.3	1001.1
140°	1035.1	1036.3	1037.7	1038.9	1040.3	1041.0	1041.3	1041.5	1041.8	1042.1	1041.8
142.5°	1073.0	1074.3	1075.6	1076.9	1078.2	1079.1	1079.5	1080.0	1080.4	1080.9	1080.7
145°	1132.2	1132.7	1133.3	1133.8	1134.3	1135.0	1135.7	1136.5	1137.3	1138.0	1137.7
147.5°	1184.0	1185.0	1185.9	1186.9	1187.8	1188.6	1189.3	1190.0	1190.7	1191.4	1191.4
150°	1220.1	1220.7	1221.2	1221.6	1222.2	1222.7	1223.2	1223.7	1224.2	1224.8	1224.8
152.5°	1249.7	1250.4	1251.2	1251.9	1252.6	1253.1	1253.5	1253.7	1254.1	1254.4	1254.8
155°	1296.5	1296.5	1296.5	1296.5	1296.5	1296.6	1296.8	1297.1	1297.4	1297.6	1298.7
157.5°	1336.2	1336.0	1335.6	1335.3	1335.0	1335.0	1335.2	1335.3	1335.6	1335.8	1336.9
160°	1361.2	1360.8	1360.2	1359.7	1359.1	1358.9	1358.9	1358.9	1358.9	1358.9	1360.2
162.5°	1383.4	1382.7	1382.0	1381.3	1380.5	1380.3	1380.5	1380.7	1380.9	1381.1	1382.4
165°	1412.1	1411.3	1410.6	1409.8	1409.1	1408.6	1408.6	1408.6	1408.6	1408.6	1410.2
167.5°	1435.0	1434.0	1433.0	1431.9	1430.9	1430.5	1430.7	1430.9	1431.1	1431.3	1432.9
170°	1448.0	1447.0	1445.9	1444.9	1443.9	1443.3	1443.3	1443.3	1443.3	1443.3	1445.1
172.5°	1458.1	1457.1	1456.1	1455.1	1454.0	1453.5	1453.5	1453.5	1453.5	1453.5	1455.1
175°	1468.8	1467.8	1466.8	1465.7	1464.6	1464.2	1464.2	1464.2	1464.2	1464.2	1465.7
177.5°	1473.2	1472.4	1471.5	1470.7	1469.9	1469.5	1469.5	1469.5	1469.5	1469.5	1470.7
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	512.3	512.3	512.3	512.3	512.3	512.3	512.3	512.3
2.5°	510.2	511.0	511.9	512.2	512.1	511.9	511.8	511.7
5°	506.9	507.7	508.5	508.9	508.7	508.5	508.4	508.2
7.5°	499.8	500.2	500.7	500.8	500.4	500.2	499.8	499.5
10°	493.4	493.5	493.6	493.4	492.9	492.5	492.0	491.5
12.5°	485.4	485.4	485.4	485.0	484.5	483.9	483.4	482.9
15°	471.4	471.0	470.6	470.0	469.4	468.7	468.1	467.4
17.5°	454.9	453.9	452.9	451.9	450.9	450.0	449.1	448.1
20°	443.4	442.2	441.0	439.9	438.7	437.7	436.6	435.4
22.5°	431.2	429.7	428.2	427.0	425.9	424.9	423.8	422.8
25°	411.2	409.3	407.3	405.8	404.8	403.9	402.8	401.8
27.5°	389.4	386.7	384.1	381.9	380.3	378.8	377.3	375.7
30°	373.9	370.8	367.7	365.3	363.8	362.4	360.9	359.4
32.5°	358.6	355.3	351.8	349.3	347.8	346.3	344.6	343.1
35°	336.1	332.1	328.1	325.3	323.7	322.0	320.3	318.7
37.5°	311.8	307.3	302.8	299.5	297.5	295.4	293.4	291.3
40°	295.0	290.2	285.3	281.9	279.7	277.7	275.5	273.4
42.5°	278.7	273.6	268.3	264.7	262.8	260.9	259.0	257.1
45°	254.9	249.7	244.4	240.7	238.5	236.3	234.1	231.8
47.5°	230.3	224.6	218.9	215.1	213.1	211.2	209.1	207.1
50°	213.7	208.0	202.3	198.4	196.3	194.1	192.0	189.8
52.5°	197.7	191.7	185.8	181.9	179.9	178.1	176.2	174.2
55°	173.8	168.4	163.1	159.4	157.7	155.8	153.9	152.0
57.5°	150.3	145.2	140.2	136.8	135.3	133.7	132.2	130.5
60°	135.5	130.5	125.5	122.2	120.6	119.0	117.5	115.9
62.5°	120.7	116.1	111.4	108.2	106.6	105.0	103.3	101.7
65°	99.8	95.3	90.8	88.0	86.9	86.0	85.0	83.9
67.5°	79.8	76.4	73.0	70.8	69.7	68.7	67.6	66.5
70°	67.5	64.3	61.0	58.9	57.9	56.9	55.8	54.8
72.5°	56.4	53.8	51.1	49.6	49.1	48.7	48.3	47.9
75°	42.2	41.3	40.3	39.8	39.6	39.4	39.2	39.1
77.5°	31.8	31.3	30.9	30.5	30.3	30.1	30.0	29.8
80°	25.6	25.3	25.1	24.9	24.6	24.4	24.3	24.1
82.5°	19.6	19.4	19.1	18.9	18.9	18.8	18.8	18.8
85°	11.2	11.1	10.9	10.8	10.8	10.8	10.8	10.8
87.5°	10.2	10.3	10.4	10.5	10.5	10.5	10.5	10.6
90°	29.8	30.9	31.8	32.6	33.2	33.7	34.2	34.7
92.5°	46.0	46.9	47.7	48.0	47.6	47.3	47.0	46.7
95°	87.7	88.6	89.7	90.2	90.2	90.2	90.2	90.2
97.5°	136.3	137.5	138.7	139.2	139.1	139.0	138.9	138.8
100°	171.6	172.3	173.1	173.7	174.2	174.8	175.3	175.8
102.5°	212.2	213.0	213.8	214.1	214.0	213.9	213.8	213.7
105°	273.0	273.0	273.0	273.2	273.8	274.2	274.7	275.3
107.5°	338.7	339.5	340.3	340.5	340.3	339.9	339.7	339.3
110°	382.5	383.6	384.6	384.9	384.3	383.9	383.3	382.8





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CATALOG NUMBER: S123RDIW-S340D1320U940-4F0-1E-UDD-F1

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	426.4	427.7	428.9	429.4	429.4	429.3	429.2	429.1
115°	493.2	493.5	493.7	493.7	493.5	493.2	492.9	492.7
117.5°	560.6	560.5	560.4	560.1	559.4	558.7	557.9	557.2
120°	605.5	605.3	605.0	604.6	604.1	603.6	603.1	602.5
122.5°	650.9	650.2	649.6	648.9	648.2	647.5	646.8	646.0
125°	718.5	717.5	716.4	715.4	714.3	713.3	712.3	711.2
127.5°	785.2	783.7	782.3	781.0	779.8	778.6	777.5	776.2
130°	829.5	828.5	827.4	826.0	824.2	822.4	820.6	818.9
132.5°	872.5	871.3	870.1	868.8	867.4	866.0	864.6	863.3
135°	937.0	936.0	935.0	934.2	933.7	933.2	932.6	932.2
137.5°	1000.1	999.0	997.9	996.9	996.0	995.0	994.0	993.0
140°	1041.5	1041.3	1041.0	1040.0	1038.2	1036.3	1034.6	1032.8
142.5°	1080.4	1080.1	1079.9	1079.1	1077.6	1076.3	1074.9	1073.5
145°	1137.5	1137.3	1137.0	1136.4	1135.3	1134.3	1133.3	1132.2
147.5°	1191.4	1191.4	1191.4	1190.7	1189.2	1187.6	1186.1	1184.5
150°	1224.8	1224.8	1224.8	1224.0	1222.4	1220.9	1219.3	1217.8
152.5°	1255.2	1255.6	1256.0	1255.5	1254.2	1252.9	1251.5	1250.2
155°	1299.7	1300.7	1301.7	1301.4	1299.6	1297.8	1295.9	1294.1
157.5°	1337.9	1339.0	1340.2	1339.9	1338.5	1337.0	1335.6	1334.2
160°	1361.5	1362.8	1364.1	1364.2	1363.2	1362.2	1361.1	1360.0
162.5°	1383.7	1385.0	1386.3	1386.1	1384.5	1382.8	1381.2	1379.5
165°	1411.8	1413.3	1414.8	1414.7	1412.9	1411.1	1409.3	1407.5
167.5°	1434.5	1436.1	1437.7	1437.7	1436.1	1434.5	1432.9	1431.3
170°	1447.0	1448.8	1450.5	1450.5	1448.8	1447.0	1445.1	1443.3
172.5°	1456.7	1458.3	1459.9	1459.8	1458.0	1456.2	1454.4	1452.6
175°	1467.2	1468.8	1470.3	1470.2	1468.4	1466.6	1464.8	1463.0
177.5°	1471.9	1473.2	1474.4	1474.4	1472.8	1471.4	1470.0	1468.6
180°	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3	1472.3

(END OF REPORT)