

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: P332808-935

Luminaire Tested: **S124DIW-S1020D470U935-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332808-935
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-10,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DIW-S1020D470U935-4F0-1E-UDD-D1
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5024.9 lumens
Efficiency: N/A
Efficacy: 108.8 lumens/watt
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 4' x H: 0.08')
CIE Type: Semi-Direct

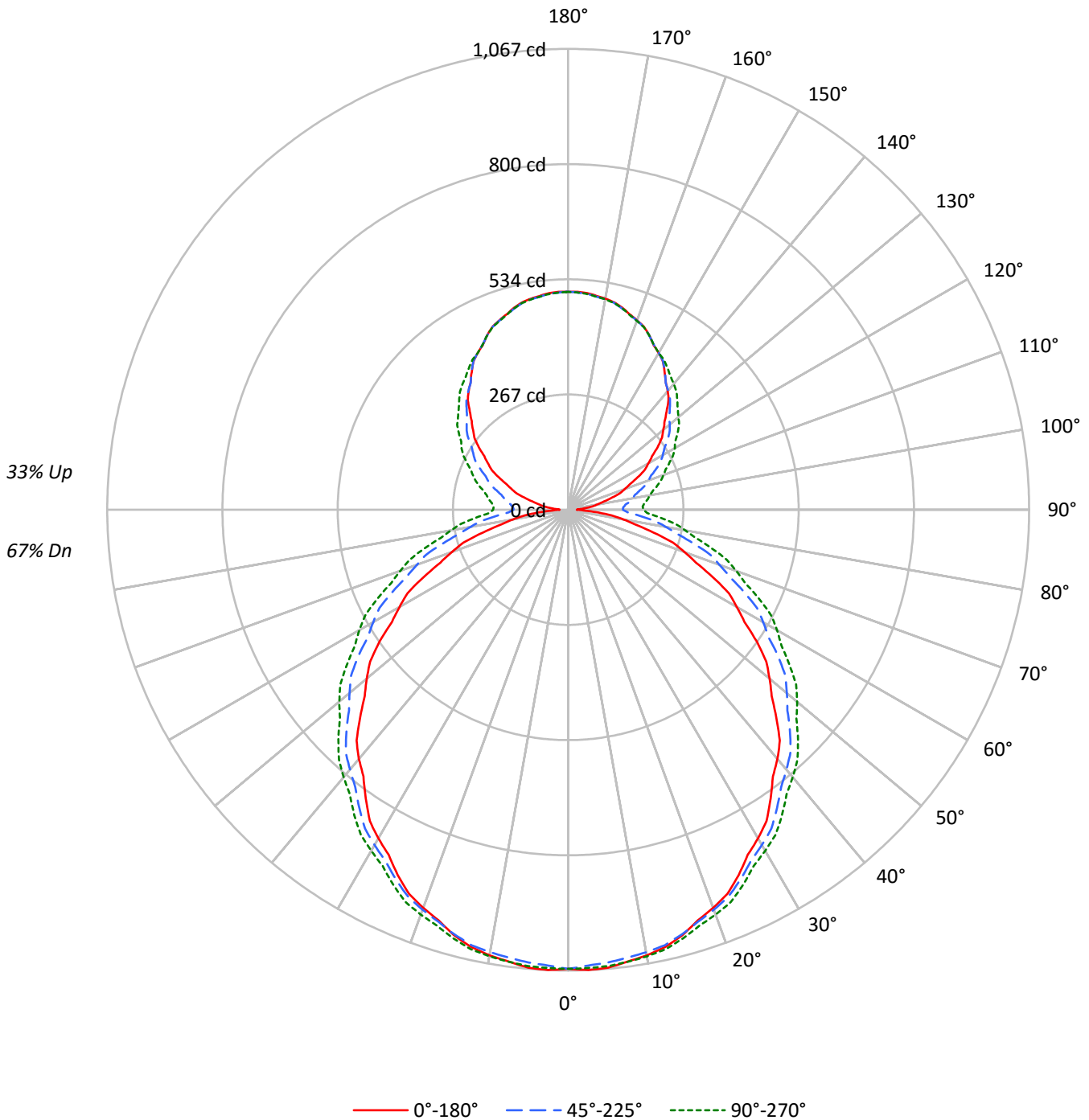
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67
1	100	95	91	87	94	90	86	82	79	76	73	70	67	65	61	59	58	53
2	91	82	75	70	85	78	71	66	69	64	60	61	57	53	53	50	48	44
3	82	72	64	57	77	68	61	55	60	54	50	53	48	45	46	43	40	36
4	75	63	55	48	70	60	52	46	53	47	42	47	42	38	41	37	34	31
5	69	56	48	41	65	53	45	39	47	41	36	42	37	33	37	33	29	26
6	63	51	42	36	59	48	40	34	43	36	31	38	33	28	33	29	26	23
7	59	46	37	31	55	43	35	30	39	32	27	34	29	25	30	26	23	20
8	55	41	33	28	51	39	32	26	35	29	24	32	26	22	28	24	20	18
9	51	38	30	25	48	36	29	24	32	26	22	29	24	20	26	21	18	16
10	47	35	27	22	45	33	26	21	30	24	20	27	22	18	24	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8582	8582	8582
5°	8608	8387	8412
10°	8556	8250	8244
15°	8479	8091	8047
20°	8364	7916	7856
25°	8233	7719	7645
30°	8093	7524	7428
35°	7933	7324	7239
40°	7804	7134	7041
45°	7615	6958	6871
50°	7455	6755	6692
55°	7289	6565	6482
60°	7031	6322	6290
65°	6747	6061	6055
70°	6405	5763	5780
75°	5924	5435	5533
80°	5397	5119	5288
85°	4721	4842	5146



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.7	2.0
10°-20°	288.4	5.7
20°-30°	436.1	8.7
30°-40°	527.7	10.5
40°-50°	557.9	11.1
50°-60°	525.0	10.4
60°-70°	435.6	8.7
70°-80°	306.0	6.1
80°-90°	174.5	3.5
90°-100°	136.0	2.7
100°-110°	174.6	3.5
110°-120°	218.3	4.3
120°-130°	249.4	5.0
130°-140°	260.2	5.2
140°-150°	246.0	4.9
150°-160°	204.8	4.1
160°-170°	136.2	2.7
170°-180°	47.7	0.9
0°-30°	825.2	16.4
0°-40°	1352.9	26.9
0°-60°	2435.8	48.5
0°-90°	3351.8	66.7
90°-120°	528.9	10.5
90°-150°	1284.4	25.6
90°-180°	1673.0	33.3
0°-180°	5024.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1063	1063	1063	1063	1063	
5°	1064	1060	1052	1061	1061	101
15°	1020	1021	1018	1028	1027	287
25°	933	940	944	956	958	430
35°	817	831	843	859	863	511
45°	681	704	726	746	752	526
55°	533	559	594	617	625	475
65°	369	407	448	476	487	366
75°	205	249	299	331	343	218
85°	63	113	167	201	214	67
90°	20	72	126	162	174	14
95°	39	82	133	165	177	38
105°	102	127	171	201	213	109
115°	177	189	225	250	259	175
125°	252	253	281	302	309	225
135°	322	325	333	350	357	249
145°	389	390	390	397	400	244
155°	445	445	444	446	444	205
165°	484	483	482	484	483	136
175°	504	502	501	504	501	48
180°	504	504	504	504	504	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1
2.5°	1066.9	1066.3	1065.6	1065.0	1064.3	1063.2	1061.4	1059.8	1058.1	1056.4	1057.8
5°	1064.2	1063.4	1062.6	1061.9	1061.1	1059.7	1057.9	1056.0	1054.2	1052.3	1054.5
7.5°	1055.2	1054.7	1054.2	1053.8	1053.3	1052.3	1050.8	1049.2	1047.7	1046.1	1048.5
10°	1047.6	1047.3	1047.1	1046.8	1046.5	1045.7	1044.4	1043.1	1041.7	1040.4	1042.8
12.5°	1037.1	1037.1	1037.0	1036.9	1036.9	1036.4	1035.5	1034.6	1033.7	1032.8	1035.0
15°	1020.2	1020.5	1020.7	1021.0	1021.2	1021.0	1020.2	1019.4	1018.6	1017.8	1020.2
17.5°	997.1	997.9	998.7	999.4	1000.3	1000.6	1000.4	1000.3	1000.1	1000.0	1002.4
20°	980.9	981.7	982.5	983.3	984.1	984.6	984.9	985.2	985.4	985.7	988.3
22.5°	962.8	963.8	964.8	965.9	966.8	967.6	968.0	968.5	969.0	969.5	972.2
25°	933.3	934.9	936.4	938.1	939.6	940.8	941.6	942.5	943.2	944.0	946.9
27.5°	900.4	902.8	905.1	907.4	909.7	911.5	912.7	914.0	915.2	916.4	919.1
30°	878.6	880.6	882.8	884.8	887.0	889.0	890.8	892.7	894.5	896.4	899.3
32.5°	854.7	857.3	859.8	862.4	864.9	867.2	869.3	871.3	873.4	875.5	878.7
35°	816.7	819.8	822.9	826.1	829.3	832.2	834.9	837.5	840.2	842.8	846.5
37.5°	778.3	782.0	785.6	789.3	792.9	796.3	799.6	802.9	806.2	809.5	813.2
40°	753.5	757.0	760.4	763.9	767.3	770.9	774.6	778.3	782.0	785.7	789.6
42.5°	725.0	728.8	732.7	736.6	740.4	744.5	748.8	753.2	757.5	761.9	766.3
45°	680.9	686.0	691.0	696.0	701.0	706.0	711.1	716.1	721.1	726.2	730.6
47.5°	638.8	643.9	649.1	654.4	659.5	665.0	670.8	676.7	682.5	688.3	692.9
50°	608.3	614.2	619.9	625.8	631.5	637.4	643.3	649.0	654.9	660.6	666.0
52.5°	577.8	583.7	589.4	595.3	601.2	607.3	614.0	620.7	627.3	634.0	639.3
55°	533.3	538.9	544.4	550.0	555.5	562.2	570.2	578.2	586.1	594.0	599.3
57.5°	483.5	490.4	497.3	504.2	511.1	518.4	526.3	534.3	542.1	550.0	556.3
60°	451.2	458.1	464.9	471.8	478.7	486.5	495.2	503.9	512.6	521.4	527.4
62.5°	419.7	427.2	434.8	442.3	449.8	457.9	466.7	475.4	484.1	492.8	498.9
65°	369.0	377.5	386.0	394.4	402.9	411.6	420.6	429.6	438.6	447.6	454.2
67.5°	320.2	329.2	338.2	347.2	356.2	365.5	375.1	384.8	394.4	404.1	410.8
70°	286.9	295.9	304.9	313.8	322.9	332.4	342.4	352.5	362.6	372.6	379.8
72.5°	254.5	263.7	272.9	282.1	291.4	301.3	311.9	322.6	333.4	344.1	350.9
75°	204.7	214.6	224.3	234.1	243.9	254.3	265.4	276.6	287.7	298.8	306.2
77.5°	158.3	168.7	179.1	189.4	199.8	210.8	222.5	234.1	245.7	257.4	264.8
80°	129.8	140.3	150.9	161.5	172.1	183.2	194.8	206.5	218.1	229.7	237.7
82.5°	101.2	112.2	123.2	134.2	145.2	156.5	168.2	179.8	191.5	203.1	211.2
85°	63.1	74.2	85.3	96.4	107.5	119.1	131.0	142.8	154.7	166.7	174.6
87.5°	35.5	46.5	57.4	68.4	79.4	90.7	102.5	114.3	126.0	137.7	145.4
90°	20.2	31.8	43.3	54.8	66.4	78.2	90.2	102.3	114.3	126.4	134.7
92.5°	26.4	37.0	47.7	58.3	68.9	80.2	92.0	103.8	115.7	127.6	135.3
95°	38.9	48.4	57.9	67.4	76.9	87.4	98.8	110.3	121.7	133.2	140.6
97.5°	54.9	63.1	71.2	79.4	87.5	97.3	108.7	120.2	131.6	143.1	150.3
100°	67.7	74.9	82.1	89.4	96.6	105.8	116.8	127.9	139.1	150.2	157.5
102.5°	82.1	88.3	94.5	100.6	106.8	115.3	126.1	136.9	147.7	158.5	165.7
105°	101.6	107.0	112.4	117.8	123.1	130.9	141.0	151.2	161.3	171.4	178.3
107.5°	124.4	128.8	133.3	137.8	142.2	149.0	158.3	167.6	177.0	186.3	193.0
110°	139.1	142.9	146.8	150.7	154.5	161.1	170.2	179.4	188.6	197.8	203.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	154.3	157.6	160.9	164.3	167.6	173.6	182.3	191.0	199.7	208.3	214.1
115°	177.3	179.6	182.0	184.4	186.8	192.1	200.4	208.7	217.0	225.2	231.0
117.5°	199.9	201.5	202.9	204.5	206.0	210.6	218.3	226.1	233.8	241.6	246.8
120°	214.3	215.4	216.5	217.7	218.9	223.2	230.6	238.0	245.4	252.8	257.6
122.5°	230.2	230.5	230.8	231.1	231.4	235.1	242.2	249.3	256.5	263.6	268.6
125°	252.5	252.3	252.0	251.8	251.4	254.6	261.1	267.6	274.1	280.7	285.5
127.5°	273.5	273.5	273.5	273.5	273.5	276.0	280.9	285.9	290.8	295.8	300.4
130°	287.6	287.6	287.6	287.6	287.6	289.7	293.9	298.2	302.4	306.6	311.3
132.5°	302.9	302.8	302.7	302.6	302.6	304.2	307.5	310.8	314.2	317.5	321.8
135°	321.9	322.4	323.0	323.5	324.0	325.2	327.0	328.9	330.7	332.6	336.7
137.5°	343.9	343.9	343.9	343.9	343.8	344.3	345.3	346.4	347.5	348.5	352.1
140°	358.6	358.5	358.4	358.3	358.3	358.3	358.6	358.9	359.1	359.4	362.7
142.5°	371.1	371.2	371.3	371.4	371.5	371.5	371.3	371.0	370.8	370.6	373.6
145°	389.4	389.5	389.5	389.6	389.7	389.8	389.9	389.9	390.0	390.1	391.7
147.5°	407.8	407.9	408.1	408.3	408.5	408.5	408.4	408.3	408.3	408.2	408.3
150°	419.0	419.1	419.2	419.3	419.4	419.4	419.4	419.4	419.4	419.4	419.4
152.5°	428.7	428.9	429.0	429.2	429.3	429.5	429.5	429.6	429.6	429.7	429.9
155°	444.8	444.8	444.8	444.8	444.8	444.7	444.6	444.5	444.4	444.4	444.7
157.5°	458.5	458.3	458.2	458.1	457.9	457.8	457.8	457.8	457.7	457.7	458.0
160°	466.7	466.6	466.5	466.4	466.3	466.2	466.1	466.1	466.0	465.9	466.1
162.5°	474.2	473.9	473.6	473.5	473.2	473.0	472.9	472.9	472.8	472.7	473.2
165°	484.1	483.9	483.6	483.4	483.1	482.9	482.8	482.6	482.4	482.2	482.8
167.5°	491.9	491.5	491.2	490.9	490.4	490.3	490.3	490.3	490.3	490.3	490.9
170°	496.3	495.8	495.4	495.0	494.6	494.4	494.5	494.6	494.6	494.7	495.2
172.5°	499.4	499.0	498.7	498.3	497.9	497.7	497.7	497.8	497.8	497.8	498.4
175°	503.7	503.3	502.8	502.4	502.0	501.7	501.6	501.5	501.4	501.4	502.0
177.5°	505.1	504.7	504.4	504.0	503.7	503.5	503.5	503.5	503.5	503.5	504.0
180°	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1	1063.1
2.5°	1059.4	1060.8	1062.3	1062.9	1062.7	1062.5	1062.3	1062.1
5°	1056.5	1058.7	1060.8	1061.7	1061.4	1061.2	1060.9	1060.7
7.5°	1050.9	1053.3	1055.7	1056.7	1056.4	1056.2	1055.9	1055.7
10°	1045.2	1047.6	1050.0	1051.0	1050.8	1050.5	1050.2	1050.0
12.5°	1037.2	1039.3	1041.5	1042.6	1042.5	1042.4	1042.4	1042.3
15°	1022.6	1024.9	1027.3	1028.4	1028.1	1027.9	1027.6	1027.3
17.5°	1004.8	1007.3	1009.7	1010.8	1010.6	1010.4	1010.1	1010.0
20°	990.9	993.6	996.3	997.6	997.6	997.6	997.6	997.6
22.5°	974.7	977.4	980.1	981.6	982.1	982.4	982.8	983.3
25°	949.9	952.7	955.6	957.3	957.5	957.8	958.0	958.3
27.5°	921.8	924.5	927.2	928.7	929.0	929.4	929.6	930.0
30°	902.2	905.1	908.0	909.7	910.2	910.8	911.4	911.9
32.5°	882.1	885.5	888.8	890.7	891.2	891.7	892.3	892.9
35°	850.2	853.9	857.6	859.9	860.7	861.4	862.3	863.1
37.5°	817.0	820.8	824.5	826.8	827.7	828.5	829.3	830.2
40°	793.6	797.5	801.6	804.1	805.1	806.2	807.3	808.3
42.5°	770.7	775.1	779.5	782.0	782.9	783.8	784.6	785.4
45°	735.1	739.7	744.2	747.1	748.4	749.7	751.1	752.3
47.5°	697.6	702.2	707.0	710.1	711.6	713.3	714.8	716.4
50°	671.2	676.6	681.8	685.3	686.9	688.5	690.0	691.6
52.5°	644.6	649.9	655.2	658.6	660.2	661.8	663.4	665.0
55°	604.6	609.9	615.2	618.6	620.2	621.8	623.4	625.0
57.5°	562.6	568.9	575.1	579.0	580.5	582.0	583.5	585.0
60°	533.6	539.7	545.7	549.8	552.0	554.1	556.2	558.3
62.5°	505.0	511.1	517.2	521.2	523.4	525.5	527.6	529.8
65°	460.8	467.4	474.1	478.5	480.5	482.7	484.7	486.9
67.5°	417.5	424.2	430.9	435.3	437.4	439.5	441.5	443.6
70°	386.8	394.0	401.1	405.7	407.5	409.4	411.2	413.1
72.5°	357.9	364.8	371.8	376.3	378.3	380.4	382.5	384.5
75°	313.6	321.0	328.4	333.3	335.7	338.1	340.4	342.9
77.5°	272.4	279.9	287.4	292.5	295.0	297.6	300.1	302.6
80°	245.6	253.6	261.5	266.5	268.6	270.8	272.9	275.0
82.5°	219.4	227.6	235.7	240.9	243.2	245.6	247.9	250.2
85°	182.5	190.5	198.4	203.7	206.4	209.0	211.6	214.3
87.5°	153.2	161.0	168.8	173.8	176.2	178.6	180.9	183.3
90°	142.8	151.0	159.2	164.5	166.8	169.0	171.3	173.6
92.5°	143.1	150.9	158.7	163.7	165.9	168.2	170.3	172.5
95°	148.0	155.4	162.8	167.7	170.1	172.5	174.9	177.3
97.5°	157.6	164.8	172.0	176.8	179.1	181.3	183.7	185.9
100°	164.8	172.1	179.4	184.0	185.9	187.7	189.6	191.4
102.5°	172.9	180.0	187.2	191.8	194.0	196.1	198.3	200.4
105°	185.2	192.0	198.9	203.5	206.0	208.3	210.7	213.0
107.5°	199.8	206.6	213.3	217.6	219.5	221.4	223.3	225.2
110°	209.6	215.5	221.4	225.6	227.9	230.3	232.7	235.1



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CATALOG NUMBER: S124DIW-S1020D470U935-4F0-1E-UDD-D1

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	220.0	225.8	231.7	235.7	237.8	240.0	242.2	244.4
115°	236.8	242.5	248.2	251.9	253.7	255.5	257.3	259.0
117.5°	252.0	257.3	262.4	266.0	267.9	269.9	271.8	273.8
120°	262.5	267.3	272.2	275.8	278.1	280.3	282.7	284.9
122.5°	273.6	278.6	283.6	286.9	288.5	290.1	291.7	293.3
125°	290.4	295.2	300.1	303.2	304.6	306.1	307.5	308.9
127.5°	305.0	309.5	314.2	317.3	318.9	320.6	322.3	323.9
130°	315.8	320.4	324.9	327.9	329.2	330.4	331.7	332.9
132.5°	326.2	330.6	335.0	337.9	339.3	340.8	342.2	343.7
135°	340.7	344.7	348.8	351.5	352.8	354.2	355.5	356.8
137.5°	355.8	359.4	363.1	365.6	367.0	368.3	369.7	371.0
140°	366.1	369.5	372.8	375.1	376.3	377.5	378.8	380.0
142.5°	376.6	379.5	382.5	384.6	385.7	386.8	387.9	389.0
145°	393.1	394.7	396.1	397.3	398.1	398.9	399.7	400.5
147.5°	408.5	408.6	408.7	409.2	409.9	410.7	411.5	412.2
150°	419.4	419.4	419.4	419.4	419.3	419.2	419.1	419.0
152.5°	430.2	430.3	430.6	430.5	430.3	430.1	429.9	429.6
155°	445.1	445.4	445.7	445.7	445.4	445.1	444.7	444.4
157.5°	458.2	458.5	458.7	458.7	458.5	458.1	457.9	457.5
160°	466.4	466.7	466.9	466.8	466.4	466.0	465.5	465.0
162.5°	473.6	474.2	474.6	474.6	474.2	473.7	473.3	472.9
165°	483.3	483.8	484.3	484.4	484.1	483.7	483.4	483.0
167.5°	491.4	491.9	492.4	492.4	491.9	491.4	490.8	490.3
170°	495.8	496.3	496.8	496.7	496.1	495.5	494.9	494.3
172.5°	499.0	499.6	500.2	500.2	499.6	498.9	498.3	497.7
175°	502.6	503.2	503.8	503.8	503.2	502.6	502.0	501.4
177.5°	504.5	505.0	505.5	505.4	504.9	504.4	503.8	503.3
180°	504.5	504.5	504.5	504.5	504.5	504.5	504.5	504.5

(END OF REPORT)