

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: P332820-927

Luminaire Tested: **S124DIW-S1020D1050U927-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332820-927  
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-S1020D1050U927-4F0-1E-UDD-D1  
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER  
UPLIGHT 1050 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6216.1 lumens  
Efficiency: N/A  
Efficacy: 101.6 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: General Diffuse

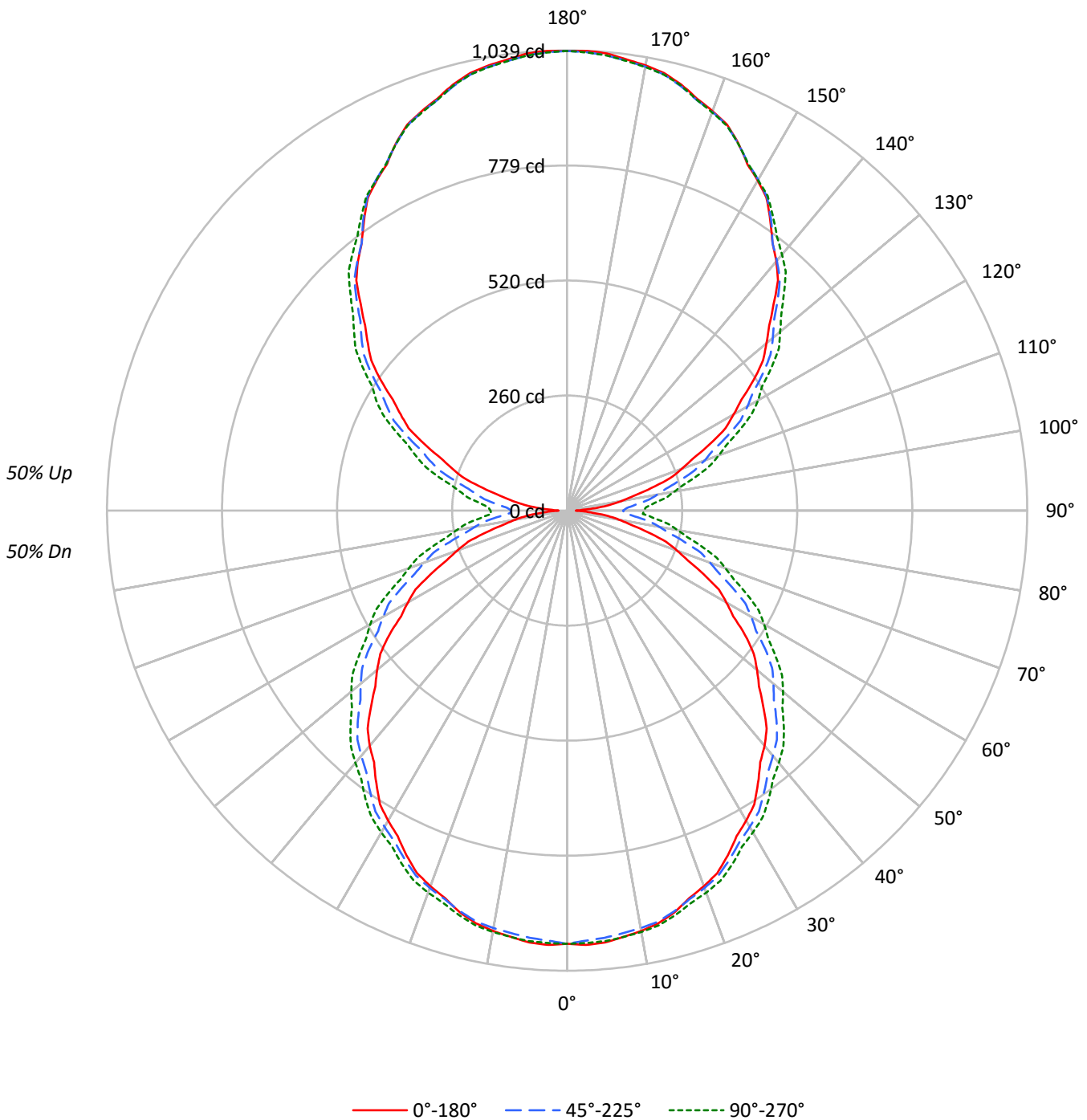
Input Watts (W): 61.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	50
1	97	92	88	84	89	85	81	78	71	69	66	59	57	55	48	46	45	40
2	88	80	73	68	80	74	68	63	62	58	54	51	48	45	41	39	37	32
3	80	70	62	56	73	64	58	52	54	49	45	45	41	38	36	34	31	27
4	73	61	53	47	67	57	49	44	48	42	38	40	36	32	32	29	27	23
5	67	55	46	40	61	50	43	37	43	37	32	36	31	28	29	26	23	20
6	61	49	40	34	56	45	38	32	38	33	28	32	28	24	26	23	20	17
7	57	44	36	30	52	41	33	28	35	29	25	29	25	21	24	20	18	15
8	52	40	32	26	48	37	30	25	32	26	22	27	22	19	22	18	16	13
9	49	36	29	23	45	34	27	22	29	23	19	24	20	17	20	17	14	12
10	46	33	26	21	42	31	24	20	27	21	17	23	18	15	19	15	13	11

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

	0°	45°	90°
0°	7896	7896	7896
5°	7920	7717	7739
10°	7872	7591	7585
15°	7802	7444	7404
20°	7695	7284	7227
25°	7575	7102	7034
30°	7445	6922	6835
35°	7299	6739	6660
40°	7181	6564	6478
45°	7007	6402	6322
50°	6859	6215	6158
55°	6707	6040	5964
60°	6469	5816	5788
65°	6208	5578	5571
70°	5894	5303	5319
75°	5453	5001	5089
80°	4964	4711	4865
85°	4347	4456	4735



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	92.6	1.5
10°-20°	265.4	4.3
20°-30°	401.3	6.5
30°-40°	485.5	7.8
40°-50°	513.3	8.3
50°-60°	483.1	7.8
60°-70°	400.8	6.4
70°-80°	281.5	4.5
80°-90°	162.3	2.6
90°-100°	162.9	2.6
100°-110°	272.7	4.4
110°-120°	391.1	6.3
120°-130°	480.2	7.7
130°-140°	521.0	8.4
140°-150°	503.1	8.1
150°-160°	421.2	6.8
160°-170°	280.2	4.5
170°-180°	98.1	1.6
0°-30°	759.3	12.2
0°-40°	1244.8	20.0
0°-60°	2241.1	36.1
0°-90°	3085.6	49.6
90°-120°	826.7	13.3
90°-150°	2331.0	37.5
90°-180°	3131.0	50.4
0°-180°	6216.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	978	978	978	978	978	
5°	979	976	968	976	976	93
15°	939	940	936	946	945	264
25°	859	865	868	880	882	395
35°	751	764	776	790	794	470
45°	626	647	668	686	692	484
55°	491	514	546	568	575	437
65°	340	375	412	438	448	336
75°	188	229	275	304	315	200
85°	58	104	153	185	197	62
90°	20	73	126	161	173	15
95°	62	106	156	187	198	65
105°	197	221	263	292	304	210
115°	356	368	400	422	430	352
125°	514	514	540	558	564	458
135°	659	664	672	687	692	510
145°	800	802	802	808	810	500
155°	915	915	914	917	914	421
165°	996	994	992	996	994	281
175°	1036	1032	1031	1036	1031	98
180°	1038	1038	1038	1038	1038	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	978.1	978.1	978.1	978.1	978.1	978.1	978.1	978.1	978.1	978.1	978.1
2.5°	981.6	981.0	980.4	979.9	979.2	978.2	976.6	975.1	973.5	971.9	973.3
5°	979.1	978.4	977.7	977.0	976.3	975.0	973.4	971.6	969.9	968.2	970.2
7.5°	970.8	970.4	969.9	969.6	969.1	968.2	966.8	965.4	963.9	962.5	964.7
10°	963.8	963.6	963.4	963.1	962.9	962.1	960.9	959.7	958.5	957.3	959.5
12.5°	954.2	954.2	954.1	954.0	954.0	953.5	952.8	951.9	951.1	950.2	952.3
15°	938.7	938.9	939.1	939.4	939.6	939.4	938.7	937.9	937.2	936.4	938.7
17.5°	917.4	918.1	918.9	919.6	920.4	920.6	920.4	920.4	920.2	920.0	922.3
20°	902.5	903.2	904.0	904.7	905.5	905.9	906.2	906.4	906.7	906.9	909.3
22.5°	885.8	886.8	887.7	888.7	889.5	890.3	890.7	891.1	891.5	892.0	894.5
25°	858.7	860.2	861.6	863.1	864.5	865.6	866.3	867.1	867.8	868.5	871.2
27.5°	828.5	830.6	832.7	834.9	837.0	838.7	839.8	840.9	842.0	843.1	845.7
30°	808.3	810.2	812.2	814.1	816.1	817.9	819.6	821.3	823.0	824.7	827.4
32.5°	786.4	788.8	791.1	793.4	795.7	797.9	799.8	801.7	803.6	805.5	808.5
35°	751.4	754.3	757.2	760.1	763.0	765.7	768.2	770.6	773.0	775.5	778.9
37.5°	716.1	719.5	722.8	726.2	729.5	732.7	735.7	738.7	741.8	744.8	748.2
40°	693.3	696.5	699.7	702.8	706.0	709.2	712.6	716.1	719.5	722.9	726.5
42.5°	667.0	670.6	674.1	677.7	681.2	685.0	689.0	693.0	697.0	701.0	705.0
45°	626.5	631.1	635.7	640.4	645.0	649.6	654.3	658.9	663.5	668.1	672.2
47.5°	587.7	592.5	597.2	602.1	606.8	611.9	617.2	622.6	628.0	633.3	637.5
50°	559.7	565.1	570.4	575.8	581.1	586.5	591.8	597.1	602.5	607.8	612.8
52.5°	531.6	537.0	542.3	547.7	553.1	558.8	564.9	571.1	577.2	583.4	588.2
55°	490.7	495.8	500.9	506.0	511.1	517.3	524.7	532.0	539.2	546.5	551.4
57.5°	444.9	451.2	457.6	463.9	470.2	477.0	484.3	491.5	498.8	506.0	511.8
60°	415.1	421.4	427.8	434.1	440.5	447.6	455.7	463.7	471.7	479.7	485.3
62.5°	386.2	393.1	400.1	406.9	413.8	421.3	429.4	437.4	445.4	453.4	459.1
65°	339.5	347.3	355.1	362.9	370.7	378.7	387.0	395.3	403.5	411.9	417.9
67.5°	294.6	302.9	311.2	319.5	327.7	336.3	345.2	354.0	362.9	371.8	378.0
70°	264.0	272.3	280.5	288.8	297.1	305.9	315.1	324.3	333.6	342.9	349.4
72.5°	234.2	242.6	251.1	259.6	268.1	277.2	287.0	296.8	306.7	316.6	322.9
75°	188.4	197.4	206.4	215.4	224.4	234.0	244.2	254.4	264.7	274.9	281.7
77.5°	145.7	155.2	164.8	174.3	183.9	193.9	204.7	215.4	226.1	236.8	243.7
80°	119.4	129.1	138.9	148.6	158.4	168.6	179.3	190.0	200.7	211.4	218.7
82.5°	93.1	103.2	113.4	123.5	133.6	144.0	154.7	165.4	176.2	186.9	194.3
85°	58.1	68.3	78.5	88.7	98.9	109.6	120.5	131.4	142.4	153.4	160.7
87.5°	32.9	43.3	53.6	63.8	74.2	84.8	95.8	106.7	117.6	128.7	135.9
90°	20.0	31.6	43.3	55.1	66.7	78.5	90.4	102.3	114.2	126.1	134.2
92.5°	33.8	44.8	55.8	66.9	77.9	89.1	100.5	112.0	123.5	135.0	142.4
95°	62.4	72.0	81.7	91.3	100.9	111.4	122.6	133.8	145.0	156.3	163.3
97.5°	97.0	105.2	113.4	121.6	129.8	139.6	150.9	162.2	173.6	185.0	191.9
100°	124.4	131.4	138.5	145.5	152.6	161.6	172.7	183.9	195.0	206.0	212.9
102.5°	153.9	159.8	165.6	171.4	177.3	185.6	196.3	207.1	217.9	228.6	235.5
105°	196.9	201.9	206.9	212.0	217.1	224.4	234.2	243.8	253.6	263.3	269.9
107.5°	244.0	248.2	252.4	256.6	260.8	267.2	275.8	284.5	293.1	301.7	308.2
110°	275.2	278.9	282.7	286.5	290.3	296.3	304.7	313.0	321.3	329.7	334.9



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	307.7	310.8	313.9	317.0	320.0	325.5	333.4	341.1	349.0	356.7	362.1
115°	356.5	358.6	360.8	363.1	365.2	370.0	377.5	384.9	392.4	399.7	405.0
117.5°	403.5	404.9	406.4	407.8	409.2	413.5	420.5	427.5	434.5	441.5	446.0
120°	434.0	435.5	436.9	438.3	439.8	443.8	450.3	456.9	463.3	469.8	473.9
122.5°	466.8	467.2	467.6	468.0	468.5	471.9	478.3	484.7	491.2	497.6	501.8
125°	514.0	513.7	513.5	513.3	513.0	515.9	521.7	527.7	533.5	539.5	543.8
127.5°	557.5	557.9	558.2	558.5	558.7	561.1	565.5	569.9	574.3	578.6	582.7
130°	587.5	587.8	588.1	588.4	588.7	590.8	594.7	598.6	602.5	606.3	610.4
132.5°	619.0	619.1	619.2	619.4	619.6	621.2	624.1	627.1	630.0	633.0	636.8
135°	659.4	660.5	661.6	662.7	663.7	665.1	666.9	668.5	670.3	671.9	675.5
137.5°	704.7	705.0	705.2	705.5	705.8	706.4	707.5	708.6	709.8	710.9	714.0
140°	734.9	735.0	735.1	735.2	735.3	735.5	735.8	736.0	736.3	736.5	739.5
142.5°	761.6	761.9	762.2	762.6	762.9	762.9	762.6	762.3	762.0	761.7	764.5
145°	799.6	800.1	800.5	801.0	801.5	801.8	802.0	802.2	802.3	802.5	803.8
147.5°	837.5	838.0	838.7	839.3	840.0	840.2	840.0	839.9	839.7	839.6	839.6
150°	860.6	861.0	861.5	862.0	862.4	862.7	862.7	862.7	862.7	862.7	862.7
152.5°	881.5	881.9	882.3	882.6	883.0	883.3	883.4	883.6	883.8	883.9	884.3
155°	914.9	914.9	914.9	914.9	914.9	914.8	914.6	914.4	914.3	914.1	914.8
157.5°	943.1	942.8	942.5	942.1	941.8	941.7	941.6	941.6	941.5	941.5	942.1
160°	959.8	959.6	959.4	959.3	959.1	958.9	958.7	958.5	958.4	958.2	958.7
162.5°	975.2	974.8	974.3	973.8	973.4	973.0	972.9	972.7	972.5	972.3	973.3
165°	995.9	995.4	994.8	994.3	993.8	993.3	993.0	992.6	992.3	991.9	993.0
167.5°	1011.8	1011.1	1010.3	1009.6	1008.8	1008.4	1008.5	1008.5	1008.5	1008.6	1009.6
170°	1020.8	1019.9	1019.0	1018.1	1017.2	1016.8	1017.1	1017.2	1017.4	1017.6	1018.7
172.5°	1027.2	1026.4	1025.7	1025.0	1024.2	1023.9	1023.9	1024.0	1024.0	1024.0	1025.2
175°	1036.0	1035.1	1034.3	1033.4	1032.5	1032.0	1031.7	1031.6	1031.4	1031.3	1032.5
177.5°	1038.9	1038.2	1037.5	1036.8	1036.1	1035.7	1035.7	1035.7	1035.7	1035.7	1036.7
180°	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
0°	978.1	978.1	978.1	978.1	978.1	978.1	978.1	978.1
2.5°	974.7	976.0	977.4	977.9	977.8	977.6	977.4	977.2
5°	972.1	974.1	976.0	976.8	976.6	976.4	976.1	975.9
7.5°	966.9	969.1	971.3	972.2	972.0	971.8	971.5	971.3
10°	961.6	963.8	966.1	967.0	966.8	966.5	966.3	966.1
12.5°	954.3	956.2	958.2	959.3	959.2	959.1	959.1	959.0
15°	940.9	943.0	945.2	946.2	945.9	945.7	945.5	945.2
17.5°	924.5	926.8	929.0	930.0	929.8	929.6	929.4	929.2
20°	911.7	914.2	916.6	917.8	917.8	917.8	917.8	917.8
22.5°	896.8	899.3	901.7	903.2	903.6	903.9	904.3	904.7
25°	873.9	876.5	879.2	880.7	881.0	881.2	881.5	881.7
27.5°	848.1	850.6	853.1	854.4	854.8	855.1	855.3	855.6
30°	830.1	832.7	835.4	837.0	837.5	838.0	838.5	839.0
32.5°	811.6	814.7	817.8	819.5	820.0	820.5	820.9	821.5
35°	782.3	785.7	789.1	791.2	791.9	792.6	793.4	794.1
37.5°	751.7	755.2	758.6	760.7	761.5	762.3	763.0	763.8
40°	730.2	733.8	737.5	739.8	740.8	741.7	742.8	743.7
42.5°	709.1	713.1	717.2	719.5	720.3	721.1	721.9	722.6
45°	676.4	680.6	684.7	687.4	688.6	689.8	691.0	692.2
47.5°	641.8	646.1	650.5	653.3	654.7	656.2	657.7	659.2
50°	617.6	622.5	627.3	630.5	632.0	633.4	634.9	636.4
52.5°	593.1	597.9	602.9	605.9	607.4	608.9	610.4	611.8
55°	556.3	561.2	566.0	569.2	570.6	572.1	573.5	575.0
57.5°	517.6	523.4	529.2	532.7	534.1	535.5	536.9	538.2
60°	490.9	496.5	502.1	505.9	507.9	509.8	511.7	513.7
62.5°	464.6	470.2	475.9	479.6	481.6	483.5	485.4	487.4
65°	424.0	430.1	436.2	440.2	442.1	444.1	446.0	448.0
67.5°	384.1	390.3	396.5	400.5	402.4	404.3	406.2	408.1
70°	355.9	362.5	369.1	373.3	374.9	376.7	378.3	380.1
72.5°	329.3	335.6	342.1	346.2	348.1	350.0	351.9	353.8
75°	288.5	295.3	302.1	306.7	308.9	311.1	313.2	315.4
77.5°	250.6	257.5	264.4	269.1	271.4	273.8	276.1	278.5
80°	226.0	233.3	240.6	245.2	247.2	249.1	251.0	253.0
82.5°	201.8	209.4	216.8	221.7	223.8	225.9	228.1	230.2
85°	167.9	175.2	182.5	187.4	189.9	192.3	194.7	197.2
87.5°	143.1	150.4	157.7	162.5	164.7	166.8	169.1	171.3
90°	142.4	150.4	158.6	163.8	166.1	168.4	170.7	173.0
92.5°	150.0	157.5	165.0	169.8	172.0	174.1	176.3	178.5
95°	170.5	177.6	184.7	189.3	191.5	193.8	195.9	198.1
97.5°	199.0	206.0	213.0	217.6	219.7	221.8	223.9	225.9
100°	219.9	226.8	233.8	238.1	239.8	241.5	243.2	244.9
102.5°	242.3	249.2	256.1	260.5	262.6	264.7	266.7	268.7
105°	276.6	283.1	289.8	294.3	296.8	299.3	301.7	304.3
107.5°	314.7	321.2	327.6	331.8	333.5	335.2	336.9	338.7
110°	340.2	345.4	350.6	354.5	357.0	359.5	361.9	364.4





TEST NUMBER: P332820-927

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	367.4	372.7	378.1	381.8	383.8	385.9	387.9	390.0
115°	410.1	415.3	420.5	423.8	425.3	426.9	428.4	429.9
117.5°	450.4	454.9	459.3	462.3	464.0	465.6	467.1	468.7
120°	477.8	481.8	485.8	488.9	491.2	493.5	495.8	498.1
122.5°	506.1	510.4	514.6	517.3	518.4	519.5	520.6	521.7
125°	548.0	552.2	556.5	559.2	560.3	561.4	562.5	563.6
127.5°	586.7	590.7	594.8	597.5	598.8	600.2	601.5	602.9
130°	614.4	618.5	622.4	624.9	625.6	626.3	627.1	627.8
132.5°	640.7	644.5	648.3	650.9	652.0	653.2	654.3	655.5
135°	679.0	682.5	686.1	688.3	689.3	690.1	691.1	692.1
137.5°	717.1	720.2	723.3	725.4	726.7	728.1	729.4	730.7
140°	742.4	745.4	748.5	750.4	751.5	752.5	753.5	754.6
142.5°	767.1	769.9	772.7	774.5	775.5	776.5	777.4	778.5
145°	805.1	806.4	807.6	808.5	809.0	809.4	809.8	810.2
147.5°	839.7	839.7	839.8	840.1	840.7	841.3	841.9	842.6
150°	862.7	862.7	862.7	862.6	862.4	862.3	862.1	861.9
152.5°	884.7	885.2	885.6	885.6	885.1	884.6	884.2	883.8
155°	915.5	916.2	917.0	917.0	916.2	915.5	914.8	914.1
157.5°	942.6	943.1	943.6	943.6	943.0	942.4	941.8	941.2
160°	959.3	959.8	960.4	960.1	959.3	958.4	957.5	956.6
162.5°	974.2	975.2	976.2	976.2	975.3	974.5	973.5	972.6
165°	994.0	995.1	996.2	996.3	995.6	994.9	994.2	993.5
167.5°	1010.7	1011.8	1012.9	1012.9	1011.8	1010.7	1009.6	1008.4
170°	1019.7	1020.8	1021.8	1021.8	1020.6	1019.3	1018.0	1016.8
172.5°	1026.4	1027.6	1028.9	1028.8	1027.6	1026.4	1025.1	1023.8
175°	1033.7	1035.0	1036.3	1036.3	1035.0	1033.7	1032.5	1031.3
177.5°	1037.8	1038.7	1039.7	1039.7	1038.5	1037.4	1036.3	1035.1
180°	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7	1037.7

(END OF REPORT)