

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: P332807-940

Luminaire Tested: **S124DIW-S1020D470U940-4F0-1E-UDD-D**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332807-940
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1807-864-6,
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S124DIW-S1020D470U940-4F0-1E-UDD-D
Description: DEFINE 4 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 1020 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 470 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5425.9 lumens
Efficiency: N/A
Efficacy: 117.4 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

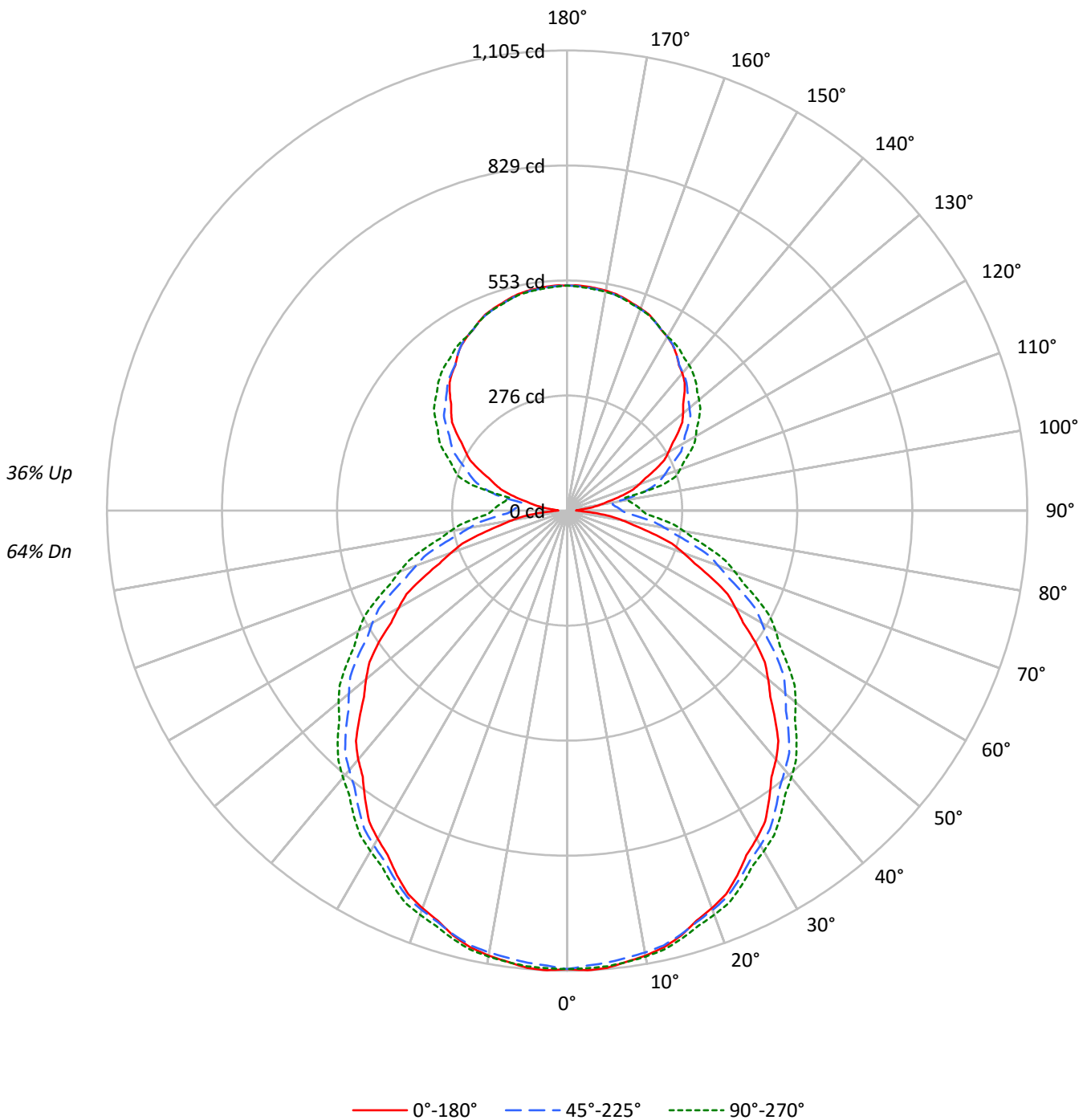
Input Watts (W): 46.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	110	110	110	104	104	104	104	91	91	91	80	80	80	69	69	69	64
1	100	95	90	86	93	89	85	81	78	75	72	68	66	64	59	57	56	51
2	90	82	75	69	84	77	71	66	68	63	59	59	55	52	51	48	46	42
3	82	72	64	57	76	67	60	54	59	54	49	52	47	44	45	41	38	35
4	75	63	55	48	70	59	52	46	52	46	41	46	41	37	40	36	33	29
5	69	56	47	41	64	53	45	39	47	40	35	41	36	32	36	32	28	25
6	63	50	42	35	59	47	40	34	42	36	31	37	32	28	32	28	25	22
7	58	45	37	31	55	43	35	30	38	32	27	34	28	24	29	25	22	19
8	54	41	33	27	51	39	31	26	35	28	24	31	26	22	27	23	20	17
9	50	38	30	24	47	36	28	23	32	26	21	28	23	20	25	21	18	15
10	47	35	27	22	44	33	26	21	29	23	19	26	21	18	23	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8888	8888	8888
5°	8916	8686	8711
10°	8861	8544	8538
15°	8782	8380	8334
20°	8662	8198	8135
25°	8527	7995	7918
30°	8381	7793	7693
35°	8216	7585	7497
40°	8083	7388	7292
45°	7887	7207	7117
50°	7721	6996	6931
55°	7549	6799	6714
60°	7282	6547	6515
65°	6989	6278	6271
70°	6633	5968	5986
75°	6136	5628	5730
80°	5588	5302	5476
85°	4893	5013	5328



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.3	1.9
10°-20°	298.7	5.5
20°-30°	451.7	8.3
30°-40°	546.5	10.1
40°-50°	577.7	10.6
50°-60°	543.7	10.0
60°-70°	451.1	8.3
70°-80°	316.9	5.8
80°-90°	180.7	3.3
90°-100°	124.8	2.3
100°-110°	196.6	3.6
110°-120°	278.2	5.1
120°-130°	315.9	5.8
130°-140°	319.0	5.9
140°-150°	288.9	5.3
150°-160°	230.9	4.3
160°-170°	148.9	2.7
170°-180°	51.3	0.9
0°-30°	854.6	15.8
0°-40°	1401.1	25.8
0°-60°	2522.6	46.5
0°-90°	3471.3	64.0
90°-120°	599.7	11.1
90°-150°	1523.5	28.1
90°-180°	1955.0	36.0
0°-180°	5425.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1101	1101	1101	1101	1101	
5°	1102	1098	1090	1099	1098	105
15°	1057	1058	1054	1065	1064	298
25°	967	974	978	991	992	445
35°	846	860	873	889	894	529
45°	705	729	752	772	779	545
55°	552	579	615	639	647	492
65°	382	422	464	493	504	379
75°	212	258	309	343	355	226
85°	65	117	173	208	222	70
90°	21	75	131	168	180	14
95°	38	67	116	150	163	41
105°	133	161	208	240	237	140
115°	234	248	286	313	322	231
125°	324	326	354	378	387	290
135°	398	399	408	428	437	307
145°	458	458	458	466	471	286
155°	501	501	500	501	500	231
165°	528	526	526	529	526	149
175°	540	538	538	541	537	51
180°	540	540	540	540	540	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1104.9	1104.3	1103.6	1103.0	1102.2	1101.1	1099.3	1097.6	1095.8	1094.0	1095.6
5°	1102.2	1101.4	1100.5	1099.7	1098.9	1097.5	1095.6	1093.7	1091.8	1089.8	1092.1
7.5°	1092.8	1092.3	1091.8	1091.4	1090.8	1089.8	1088.2	1086.6	1085.0	1083.4	1085.9
10°	1084.9	1084.7	1084.4	1084.1	1083.9	1083.0	1081.6	1080.3	1078.9	1077.5	1080.0
12.5°	1074.1	1074.1	1074.0	1073.9	1073.9	1073.4	1072.5	1071.5	1070.6	1069.6	1071.9
15°	1056.6	1056.9	1057.1	1057.4	1057.7	1057.4	1056.6	1055.8	1054.9	1054.1	1056.6
17.5°	1032.7	1033.5	1034.3	1035.1	1036.0	1036.3	1036.1	1036.0	1035.8	1035.6	1038.1
20°	1015.9	1016.7	1017.5	1018.3	1019.2	1019.8	1020.0	1020.3	1020.6	1020.8	1023.6
22.5°	997.1	998.2	999.3	1000.3	1001.3	1002.1	1002.6	1003.1	1003.5	1004.1	1006.8
25°	966.6	968.2	969.8	971.5	973.1	974.4	975.2	976.1	976.9	977.7	980.7
27.5°	932.6	935.0	937.4	939.8	942.2	944.1	945.3	946.6	947.8	949.0	951.9
30°	909.9	912.0	914.3	916.4	918.6	920.7	922.6	924.5	926.4	928.4	931.4
32.5°	885.2	887.9	890.5	893.1	895.7	898.1	900.3	902.4	904.6	906.7	910.1
35°	845.8	849.1	852.3	855.6	858.9	861.9	864.7	867.4	870.1	872.9	876.7
37.5°	806.0	809.9	813.6	817.4	821.2	824.7	828.1	831.5	835.0	838.4	842.2
40°	780.4	784.0	787.6	791.1	794.7	798.3	802.2	806.0	809.9	813.7	817.8
42.5°	750.8	754.8	758.8	762.9	766.8	771.1	775.5	780.1	784.5	789.1	793.6
45°	705.2	710.4	715.6	720.9	726.0	731.2	736.5	741.6	746.8	752.1	756.7
47.5°	661.6	666.9	672.3	677.7	683.1	688.8	694.7	700.8	706.9	712.8	717.6
50°	630.0	636.1	642.0	648.1	654.1	660.1	666.2	672.2	678.2	684.2	689.7
52.5°	598.4	604.5	610.5	616.5	622.6	629.0	635.9	642.8	649.7	656.7	662.1
55°	552.3	558.1	563.8	569.6	575.3	582.3	590.6	598.8	607.0	615.2	620.7
57.5°	500.8	507.9	515.1	522.2	529.3	536.9	545.1	553.3	561.4	569.6	576.1
60°	467.3	474.4	481.5	488.7	495.8	503.8	512.9	521.9	530.9	540.0	546.3
62.5°	434.7	442.5	450.3	458.1	465.8	474.2	483.3	492.3	501.4	510.4	516.7
65°	382.2	390.9	399.8	408.5	417.2	426.3	435.6	445.0	454.2	463.6	470.4
67.5°	331.6	341.0	350.3	359.6	368.9	378.5	388.5	398.5	408.5	418.5	425.4
70°	297.1	306.5	315.8	325.0	334.4	344.3	354.6	365.1	375.5	385.9	393.3
72.5°	263.6	273.1	282.7	292.2	301.8	312.0	323.1	334.1	345.3	356.3	363.5
75°	212.0	222.2	232.3	242.5	252.6	263.4	274.9	286.4	297.9	309.4	317.1
77.5°	164.0	174.7	185.5	196.2	207.0	218.3	230.4	242.5	254.5	266.5	274.3
80°	134.4	145.3	156.3	167.3	178.3	189.8	201.8	213.8	225.9	237.9	246.2
82.5°	104.8	116.2	127.6	139.0	150.3	162.1	174.2	186.2	198.3	210.4	218.7
85°	65.4	76.9	88.4	99.9	111.4	123.3	135.6	147.9	160.2	172.6	180.8
87.5°	36.7	48.2	59.5	70.9	82.2	94.0	106.1	118.3	130.5	142.6	150.6
90°	21.0	32.9	44.9	56.8	68.8	81.0	93.5	105.9	118.4	130.9	139.5
92.5°	23.8	33.7	43.7	53.6	63.5	74.7	87.2	99.7	112.2	124.7	133.0
95°	38.3	44.2	50.2	56.2	62.2	70.9	82.2	93.5	104.9	116.2	124.1
97.5°	61.7	71.4	81.1	90.8	100.5	105.8	107.0	108.1	109.1	110.3	117.5
100°	79.8	88.5	97.3	106.0	114.8	118.3	116.6	114.9	113.2	111.5	117.3
102.5°	101.2	108.6	116.0	123.5	130.9	139.0	147.9	156.8	165.6	174.4	165.1
105°	132.8	138.8	144.8	150.8	156.9	165.1	175.7	186.3	196.9	207.5	215.1
107.5°	164.1	168.9	173.6	178.3	183.2	190.6	200.8	211.1	221.2	231.4	238.5
110°	184.4	188.5	192.7	196.8	200.9	207.9	218.1	228.3	238.4	248.5	254.9



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	204.1	208.0	211.9	215.8	219.7	226.3	235.7	245.1	254.5	263.9	270.0
115°	234.5	237.3	240.0	242.7	245.5	251.2	259.8	268.5	277.2	285.9	292.0
117.5°	263.0	264.8	266.6	268.5	270.3	275.4	283.7	292.1	300.5	308.9	314.5
120°	281.3	282.6	283.7	284.9	286.1	290.6	298.5	306.3	314.1	322.0	327.7
122.5°	299.4	299.9	300.2	300.6	301.0	305.0	312.6	320.3	327.9	335.6	341.1
125°	324.2	324.3	324.4	324.4	324.5	327.9	334.6	341.3	347.9	354.5	360.1
127.5°	348.5	348.3	348.1	347.9	347.8	350.5	356.2	361.9	367.6	373.2	378.1
130°	363.4	363.2	363.0	362.8	362.7	364.9	369.5	374.2	378.8	383.4	388.5
132.5°	377.9	377.8	377.7	377.6	377.5	379.3	383.2	387.0	390.8	394.8	399.6
135°	398.5	398.4	398.3	398.2	398.1	399.2	401.5	403.8	406.1	408.3	413.0
137.5°	417.9	417.6	417.3	417.1	416.9	417.4	418.7	420.1	421.4	422.8	427.0
140°	430.4	430.3	430.3	430.2	430.1	430.3	430.7	431.1	431.6	432.0	435.9
142.5°	440.8	441.0	441.3	441.6	441.8	441.9	441.8	441.8	441.8	441.8	445.1
145°	457.9	457.9	457.9	457.9	457.9	457.9	457.9	457.9	457.9	457.9	459.6
147.5°	471.7	472.0	472.2	472.4	472.6	472.7	472.6	472.5	472.4	472.3	472.6
150°	481.7	481.8	481.9	482.0	482.1	482.1	482.0	481.9	481.8	481.7	481.7
152.5°	489.2	489.4	489.6	489.8	490.1	490.1	490.0	489.8	489.6	489.5	489.6
155°	500.7	500.8	500.9	501.0	501.1	501.0	500.7	500.4	500.2	499.9	500.2
157.5°	510.7	510.6	510.5	510.5	510.4	510.2	510.0	509.6	509.3	509.1	509.5
160°	516.5	516.2	515.9	515.7	515.4	515.2	515.1	515.1	515.0	514.9	515.4
162.5°	521.7	521.3	520.9	520.6	520.3	520.0	520.0	519.9	519.8	519.7	520.2
165°	528.2	527.7	527.3	526.8	526.4	526.2	526.2	526.2	526.2	526.2	526.9
167.5°	533.3	532.9	532.4	532.0	531.5	531.2	531.2	531.1	531.1	531.0	531.8
170°	536.3	535.7	535.2	534.7	534.1	533.9	534.0	534.0	534.1	534.2	534.9
172.5°	538.2	537.7	537.2	536.6	536.1	535.8	535.9	536.0	536.1	536.2	536.9
175°	540.3	539.8	539.2	538.7	538.1	538.0	538.1	538.1	538.2	538.3	539.1
177.5°	541.3	540.8	540.3	539.8	539.3	539.1	539.2	539.4	539.5	539.7	540.2
180°	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0	1101.0
2.5°	1097.2	1098.7	1100.2	1100.8	1100.6	1100.4	1100.2	1100.0
5°	1094.2	1096.4	1098.7	1099.6	1099.3	1099.0	1098.8	1098.5
7.5°	1088.4	1090.8	1093.3	1094.4	1094.1	1093.9	1093.6	1093.3
10°	1082.4	1084.9	1087.4	1088.5	1088.2	1088.0	1087.7	1087.4
12.5°	1074.2	1076.4	1078.6	1079.8	1079.7	1079.6	1079.6	1079.5
15°	1059.1	1061.5	1064.0	1065.1	1064.8	1064.5	1064.3	1064.0
17.5°	1040.6	1043.2	1045.7	1046.9	1046.6	1046.4	1046.2	1046.0
20°	1026.3	1029.0	1031.8	1033.1	1033.1	1033.1	1033.1	1033.1
22.5°	1009.5	1012.3	1015.0	1016.6	1017.1	1017.4	1017.9	1018.3
25°	983.7	986.7	989.7	991.4	991.7	991.9	992.2	992.5
27.5°	954.7	957.4	960.3	961.8	962.2	962.5	962.8	963.1
30°	934.4	937.4	940.4	942.2	942.7	943.3	943.9	944.4
32.5°	913.6	917.0	920.5	922.5	923.0	923.5	924.1	924.7
35°	880.6	884.4	888.2	890.6	891.4	892.2	893.0	893.9
37.5°	846.1	850.1	853.9	856.3	857.2	858.1	858.9	859.8
40°	821.9	826.0	830.2	832.8	833.8	834.9	836.1	837.1
42.5°	798.2	802.7	807.3	809.9	810.8	811.7	812.6	813.4
45°	761.3	766.1	770.7	773.7	775.1	776.4	777.8	779.2
47.5°	722.5	727.3	732.2	735.4	737.0	738.7	740.3	742.0
50°	695.2	700.7	706.1	709.7	711.4	713.0	714.6	716.3
52.5°	667.6	673.1	678.6	682.1	683.8	685.4	687.1	688.7
55°	626.2	631.7	637.1	640.7	642.3	644.0	645.6	647.3
57.5°	582.6	589.2	595.7	599.7	601.2	602.8	604.3	605.8
60°	552.6	558.9	565.2	569.4	571.7	573.8	576.0	578.2
62.5°	523.0	529.3	535.7	539.8	542.1	544.2	546.4	548.7
65°	477.2	484.1	491.0	495.5	497.7	499.9	502.0	504.3
67.5°	432.4	439.3	446.3	450.8	453.0	455.1	457.3	459.4
70°	400.6	408.0	415.4	420.2	422.0	424.0	425.9	427.8
72.5°	370.7	377.8	385.0	389.7	391.8	394.0	396.1	398.2
75°	324.8	332.4	340.1	345.2	347.7	350.2	352.6	355.1
77.5°	282.1	289.9	297.7	302.9	305.5	308.2	310.8	313.4
80°	254.4	262.6	270.8	276.0	278.2	280.4	282.6	284.8
82.5°	227.2	235.7	244.1	249.5	251.9	254.3	256.7	259.1
85°	189.0	197.2	205.5	211.0	213.7	216.4	219.2	221.9
87.5°	158.6	166.7	174.8	180.0	182.4	184.9	187.3	189.8
90°	147.9	156.4	164.9	170.3	172.7	175.0	177.5	179.8
92.5°	141.2	149.5	157.7	163.0	165.2	167.5	169.7	171.9
95°	132.1	140.0	147.9	153.1	155.7	158.3	160.8	163.4
97.5°	124.8	132.0	139.2	144.0	146.5	148.9	151.4	153.8
100°	123.2	129.1	135.0	138.9	140.9	142.9	144.9	147.0
102.5°	155.9	146.6	137.2	133.7	135.9	138.0	140.2	142.3
105°	222.7	230.4	238.1	241.4	240.3	239.3	238.3	237.2
107.5°	245.7	252.8	259.9	264.7	267.0	269.3	271.6	273.9
110°	261.4	268.0	274.4	278.9	281.3	283.8	286.2	288.7



TEST NUMBER: P332807-940

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	276.0	282.0	288.1	292.4	295.0	297.5	300.0	302.6
115°	298.3	304.5	310.7	314.8	316.6	318.6	320.5	322.4
117.5°	320.2	325.8	331.5	335.5	337.6	339.7	341.9	344.0
120°	333.3	339.0	344.6	348.5	350.5	352.5	354.5	356.6
122.5°	346.7	352.3	357.8	361.6	363.4	365.2	366.9	368.7
125°	365.5	371.0	376.5	380.0	381.8	383.5	385.3	387.0
127.5°	383.0	387.8	392.7	396.1	397.9	399.7	401.4	403.2
130°	393.5	398.5	403.6	406.9	408.6	410.2	411.8	413.5
132.5°	404.3	409.1	413.9	417.1	418.7	420.3	421.9	423.4
135°	417.5	422.0	426.6	429.8	431.6	433.5	435.2	437.1
137.5°	431.1	435.3	439.5	442.3	443.6	444.9	446.2	447.5
140°	439.7	443.5	447.4	450.0	451.5	452.9	454.4	455.8
142.5°	448.4	451.7	455.0	457.3	458.4	459.6	460.7	461.9
145°	461.4	463.1	464.8	466.3	467.6	468.9	470.1	471.4
147.5°	473.0	473.2	473.5	474.1	475.1	476.1	477.1	478.0
150°	481.7	481.7	481.7	481.8	481.9	482.0	482.1	482.1
152.5°	489.7	489.9	490.1	490.1	490.1	490.0	489.9	489.9
155°	500.6	501.0	501.3	501.4	501.1	500.9	500.6	500.3
157.5°	510.0	510.4	510.9	510.9	510.4	510.0	509.5	509.1
160°	515.9	516.5	517.0	517.0	516.5	515.9	515.4	514.9
162.5°	520.8	521.3	521.8	521.8	521.2	520.6	520.0	519.4
165°	527.6	528.3	529.1	529.0	528.2	527.4	526.6	525.8
167.5°	532.6	533.4	534.2	534.1	533.2	532.4	531.5	530.6
170°	535.7	536.4	537.2	537.1	536.1	535.2	534.3	533.4
172.5°	537.6	538.3	539.0	539.0	538.0	537.0	536.0	535.0
175°	539.9	540.7	541.5	541.4	540.3	539.2	538.1	537.1
177.5°	540.8	541.4	542.0	541.8	541.0	540.1	539.2	538.4
180°	540.3	540.3	540.3	540.3	540.3	540.3	540.3	540.3

(END OF REPORT)