

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: P332147-840

Luminaire Tested: **S123DIW-S560D1535U840-4F0-1E-UDD-D1**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P332147-840
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: S123DIW-S560D1535U840-4F0-1E-UDD-D1
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE
DOWNLIGHT 560 LUMENS PER FOOT, DROP SATIN WHITE DIFFUSER
UPLIGHT 1535 LUMENS PER FOOT, FLUSH SATIN WHITE DIFFUSER
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7763.2 lumens
Efficiency: N/A
Efficacy: 128.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.25' x L: 4' x H: 0.08')
CIE Type: Semi-Indirect

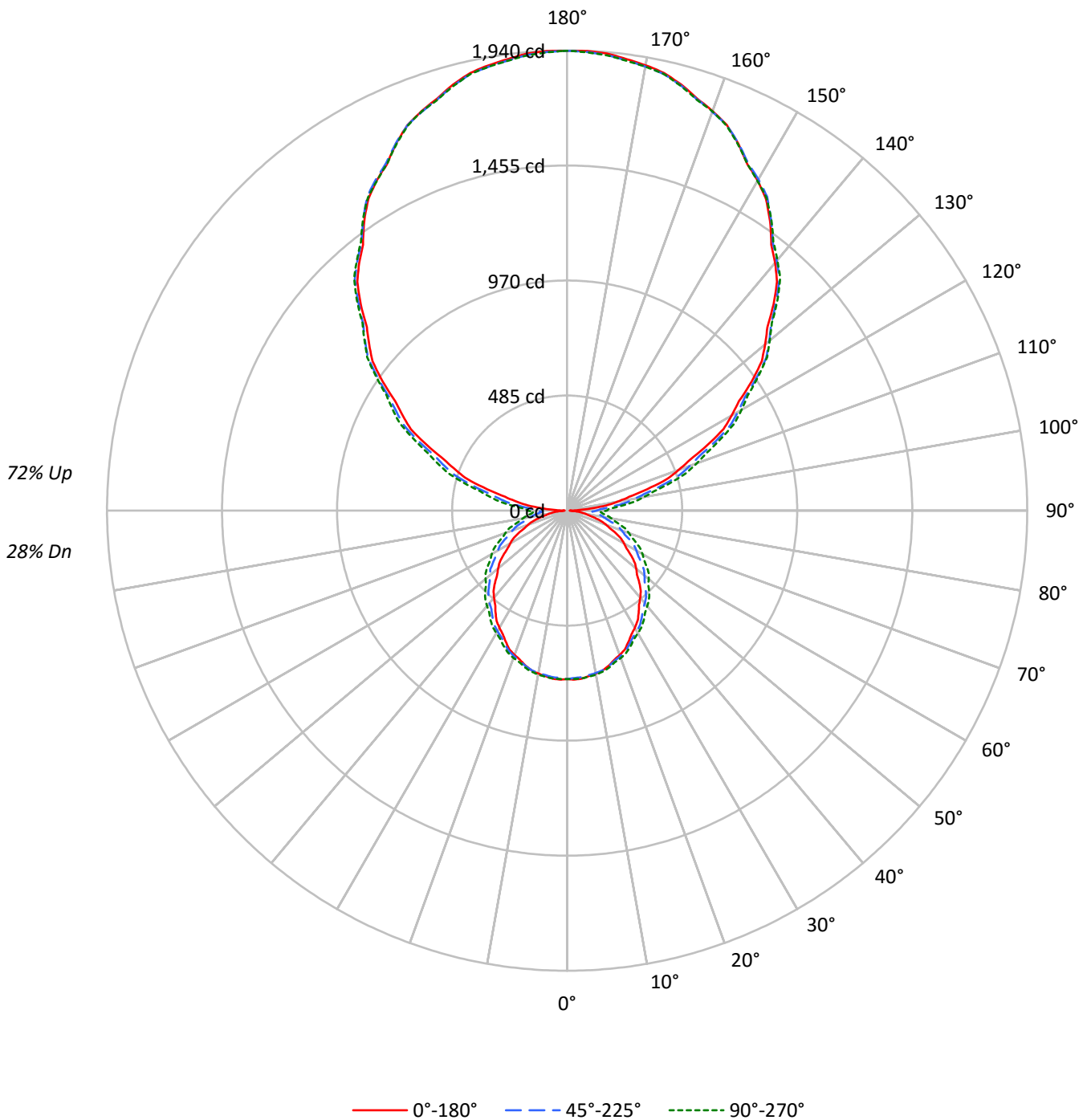
Input Watts (W): 60.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	28
1	92	88	84	80	82	79	75	72	61	59	57	46	44	43	31	30	29	23
2	84	76	70	65	75	68	63	59	53	50	47	40	37	35	27	25	24	18
3	76	67	60	54	68	60	54	49	47	42	39	35	32	29	24	22	20	15
4	70	59	51	45	62	53	46	41	41	37	33	31	28	25	21	19	17	13
5	64	52	44	38	57	47	40	35	37	32	28	28	24	21	19	17	15	11
6	58	47	39	33	52	42	35	30	33	28	24	25	21	19	17	15	13	10
7	54	42	34	29	48	38	31	26	30	25	21	22	19	16	15	13	12	9
8	50	38	30	25	44	34	28	23	27	22	19	20	17	14	14	12	10	8
9	46	34	27	22	41	31	25	20	25	20	17	19	15	13	13	11	9	7
10	43	31	24	20	39	28	22	18	23	18	15	17	14	12	12	10	8	6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7643	7643	7643
5°	7667	7451	7455
10°	7599	7280	7244
15°	7501	7084	7012
20°	7361	6862	6756
25°	7189	6606	6489
30°	7011	6375	6216
35°	6812	6132	6000
40°	6623	5910	5767
45°	6414	5697	5582
50°	6206	5488	5378
55°	5978	5271	5194
60°	5753	5053	5005
65°	5525	4819	4780
70°	5183	4558	4549
75°	4746	4256	4316
80°	4241	3962	4047
85°	3780	3757	3892



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.3	0.9
10°-20°	191.9	2.5
20°-30°	287.0	3.7
30°-40°	342.8	4.4
40°-50°	358.6	4.6
50°-60°	336.5	4.3
60°-70°	281.1	3.6
70°-80°	201.1	2.6
80°-90°	125.7	1.6
90°-100°	201.6	2.6
100°-110°	433.3	5.6
110°-120°	679.8	8.8
120°-130°	866.7	11.2
130°-140°	959.9	12.4
140°-150°	936.3	12.1
150°-160°	786.6	10.1
160°-170°	523.6	6.7
170°-180°	183.3	2.4
0°-30°	546.3	7.0
0°-40°	889.0	11.5
0°-60°	1584.2	20.4
0°-90°	2192.0	28.2
90°-120°	1314.7	16.9
90°-150°	4077.7	52.5
90°-180°	5571.0	71.8
0°-180°	7763.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	710	710	710	710	710	
5°	711	709	705	710	710	67
15°	677	679	678	686	685	191
25°	611	619	621	631	631	282
35°	526	538	548	560	563	329
45°	430	449	468	482	489	332
55°	328	354	381	401	408	294
65°	227	257	291	313	322	224
75°	123	160	198	223	233	131
85°	38	77	118	143	152	40
90°	12	65	124	155	167	12
95°	98	140	189	218	227	108
105°	349	372	417	438	449	373
115°	651	666	690	709	714	644
125°	950	955	974	983	983	847
135°	1230	1239	1246	1253	1254	948
145°	1492	1494	1498	1503	1500	931
155°	1707	1707	1709	1714	1704	785
165°	1859	1855	1855	1863	1853	524
175°	1934	1928	1928	1936	1926	184
180°	1938	1938	1938	1938	1938	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1
2.5°	713.3	712.9	712.5	712.0	711.6	710.8	709.7	708.6	707.5	706.4	707.5
5°	710.9	710.5	710.2	709.9	709.5	708.8	707.8	706.8	705.8	704.7	706.1
7.5°	704.0	704.0	704.1	704.2	704.3	703.8	702.8	701.8	700.7	699.7	701.5
10°	697.8	698.1	698.4	698.8	699.1	698.9	698.0	697.2	696.3	695.5	697.2
12.5°	690.3	690.8	691.4	691.8	692.3	692.3	691.7	691.1	690.4	689.8	691.5
15°	676.9	677.4	677.9	678.4	678.9	679.1	678.9	678.7	678.6	678.4	680.1
17.5°	659.8	660.9	662.0	663.0	664.0	664.5	664.4	664.3	664.3	664.2	665.7
20°	647.5	648.5	649.5	650.6	651.6	652.3	652.7	653.0	653.3	653.7	655.2
22.5°	634.5	635.5	636.5	637.6	638.6	639.3	639.9	640.4	640.9	641.3	643.3
25°	611.2	612.9	614.6	616.3	618.0	619.1	619.7	620.2	620.7	621.2	623.4
27.5°	587.6	589.6	591.6	593.5	595.4	596.9	598.0	599.2	600.3	601.4	603.3
30°	570.9	573.1	575.3	577.6	579.9	581.7	583.0	584.4	585.7	587.1	589.3
32.5°	552.3	554.8	557.3	559.9	562.4	564.5	566.3	568.0	569.9	571.7	573.9
35°	526.0	528.8	531.5	534.3	537.0	539.6	541.8	544.0	546.2	548.5	551.1
37.5°	498.2	501.3	504.3	507.5	510.6	513.5	516.2	519.0	521.7	524.5	527.5
40°	479.6	482.7	485.8	488.9	492.0	495.2	498.7	502.1	505.5	509.0	511.9
42.5°	459.2	463.0	466.8	470.5	474.3	478.0	481.6	485.1	488.8	492.3	495.5
45°	430.1	434.2	438.4	442.5	446.6	450.8	455.1	459.4	463.7	468.0	471.3
47.5°	399.6	404.3	409.0	413.6	418.3	423.1	428.1	432.9	437.9	442.8	446.5
50°	379.8	384.7	389.4	394.3	399.1	404.1	409.5	414.9	420.1	425.5	429.4
52.5°	358.8	363.9	369.0	374.1	379.1	384.7	390.5	396.4	402.2	408.2	412.2
55°	328.0	333.7	339.3	345.0	350.7	356.6	362.8	369.0	375.2	381.3	386.0
57.5°	298.0	303.9	309.8	315.7	321.6	328.0	334.8	341.5	348.3	355.1	359.7
60°	276.9	283.2	289.3	295.5	301.6	308.3	315.4	322.4	329.4	336.5	341.3
62.5°	257.1	263.5	269.8	276.1	282.5	289.3	296.8	304.3	311.7	319.2	324.0
65°	226.6	233.4	240.0	246.8	253.5	260.6	268.2	275.7	283.3	290.8	296.0
67.5°	195.7	202.9	210.0	217.0	224.2	231.6	239.3	247.0	254.7	262.4	268.0
70°	174.1	181.5	188.8	196.2	203.6	211.5	219.6	227.9	236.2	244.5	249.9
72.5°	154.2	161.7	169.1	176.4	183.8	191.8	200.3	208.8	217.3	225.9	231.6
75°	123.0	131.1	139.2	147.2	155.3	163.7	172.3	180.9	189.5	198.0	203.7
77.5°	95.7	103.9	112.1	120.2	128.4	136.7	145.4	154.1	162.8	171.5	177.4
80°	76.5	85.0	93.4	101.9	110.3	119.0	127.8	136.8	145.8	154.7	160.6
82.5°	59.9	68.5	77.0	85.5	94.1	102.9	112.0	121.1	130.2	139.3	145.1
85°	37.9	46.5	55.1	63.7	72.3	81.1	90.3	99.4	108.5	117.5	123.4
87.5°	20.9	30.1	39.4	48.6	57.9	67.3	77.0	86.5	96.2	105.8	112.0
90°	11.6	23.4	35.2	47.0	58.8	71.3	84.4	97.7	110.8	124.0	131.2
92.5°	46.3	56.1	66.0	75.9	85.8	96.4	107.6	118.7	129.8	141.0	147.7
95°	98.4	107.4	116.5	125.5	134.6	144.7	155.9	167.0	178.1	189.2	195.9
97.5°	167.1	175.0	182.8	190.6	198.4	207.3	217.3	227.3	237.3	247.3	254.1
100°	214.1	221.6	229.1	236.6	244.2	252.8	262.4	272.0	281.6	291.1	297.2
102.5°	268.2	274.5	280.6	286.8	293.0	301.0	311.0	321.0	331.0	341.0	346.9
105°	348.8	353.7	358.4	363.2	368.0	375.7	386.1	396.6	407.0	417.4	422.2
107.5°	441.7	445.7	449.5	453.4	457.4	463.4	471.7	479.9	488.2	496.3	502.0
110°	499.6	503.3	507.1	510.9	514.6	520.3	527.9	535.4	543.0	550.5	556.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	560.5	563.4	566.3	569.4	572.3	577.1	583.8	590.6	597.3	604.1	610.1
115°	651.1	654.2	657.2	660.4	663.4	667.7	673.2	678.7	684.2	689.7	694.2
117.5°	742.9	744.9	746.8	748.7	750.7	754.2	759.0	764.0	768.9	773.9	777.9
120°	799.5	802.4	805.3	808.2	811.1	814.6	818.5	822.5	826.5	830.4	834.0
122.5°	859.2	861.1	863.1	865.1	867.0	870.2	874.7	879.2	883.7	888.3	891.2
125°	949.5	950.5	951.6	952.6	953.6	956.2	960.6	964.8	969.2	973.5	975.7
127.5°	1033.6	1035.6	1037.5	1039.6	1041.6	1044.2	1047.6	1051.0	1054.4	1057.7	1059.2
130°	1089.6	1092.2	1094.7	1097.2	1099.7	1102.3	1104.7	1107.1	1109.5	1112.0	1113.9
132.5°	1145.1	1147.7	1150.3	1153.1	1155.7	1158.1	1160.0	1162.1	1164.1	1166.1	1167.6
135°	1230.4	1232.3	1234.2	1236.1	1237.9	1239.6	1241.1	1242.7	1244.3	1245.8	1247.6
137.5°	1309.5	1311.0	1312.6	1314.1	1315.8	1317.5	1319.4	1321.3	1323.3	1325.2	1326.6
140°	1363.7	1365.4	1367.1	1368.8	1370.5	1371.7	1372.6	1373.4	1374.3	1375.1	1377.4
142.5°	1413.6	1415.2	1416.7	1418.4	1419.9	1421.0	1421.7	1422.4	1423.1	1423.8	1425.8
145°	1491.6	1492.1	1492.6	1493.1	1493.6	1494.4	1495.4	1496.4	1497.4	1498.4	1499.4
147.5°	1559.0	1560.2	1561.5	1562.8	1564.0	1565.0	1566.0	1566.9	1567.8	1568.8	1569.2
150°	1606.6	1607.3	1607.9	1608.6	1609.3	1609.9	1610.6	1611.3	1611.9	1612.7	1612.7
152.5°	1645.6	1646.5	1647.5	1648.4	1649.3	1650.0	1650.4	1650.8	1651.2	1651.6	1652.2
155°	1707.1	1707.1	1707.1	1707.1	1707.1	1707.3	1707.6	1707.9	1708.3	1708.6	1710.0
157.5°	1759.5	1759.1	1758.7	1758.3	1757.9	1757.8	1758.1	1758.3	1758.6	1758.9	1760.3
160°	1792.4	1791.7	1791.0	1790.3	1789.7	1789.3	1789.3	1789.3	1789.3	1789.3	1791.0
162.5°	1821.6	1820.7	1819.7	1818.8	1817.9	1817.5	1817.8	1818.1	1818.3	1818.6	1820.3
165°	1859.4	1858.4	1857.3	1856.3	1855.3	1854.8	1854.8	1854.8	1854.8	1854.8	1856.8
167.5°	1889.6	1888.1	1886.8	1885.4	1884.1	1883.6	1883.8	1884.1	1884.4	1884.6	1886.7
170°	1906.5	1905.2	1903.9	1902.5	1901.2	1900.5	1900.5	1900.5	1900.5	1900.5	1902.9
172.5°	1920.0	1918.6	1917.2	1915.9	1914.6	1913.9	1913.9	1913.9	1913.9	1913.9	1916.0
175°	1934.0	1932.7	1931.3	1930.0	1928.5	1927.9	1927.9	1927.9	1927.9	1927.9	1930.0
177.5°	1939.7	1938.7	1937.6	1936.5	1935.4	1934.9	1934.9	1934.9	1934.9	1934.9	1936.5
180°	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	710.1	710.1	710.1	710.1	710.1	710.1	710.1	710.1
2.5°	708.6	709.7	710.8	711.3	711.1	711.0	710.9	710.7
5°	707.5	708.8	710.2	710.8	710.6	710.4	710.3	710.1
7.5°	703.2	704.9	706.7	707.4	707.2	707.0	706.8	706.6
10°	698.9	700.6	702.4	703.0	702.7	702.4	702.0	701.7
12.5°	693.1	694.6	696.2	696.8	696.5	696.1	695.8	695.5
15°	681.9	683.6	685.3	686.1	685.9	685.7	685.6	685.4
17.5°	667.3	668.8	670.3	671.1	670.8	670.6	670.3	670.0
20°	656.8	658.3	659.8	660.8	660.9	661.1	661.3	661.4
22.5°	645.2	647.2	649.1	650.1	649.9	649.8	649.7	649.6
25°	625.6	627.9	630.2	631.3	631.3	631.3	631.3	631.3
27.5°	605.2	607.1	609.0	610.2	610.3	610.4	610.6	610.7
30°	591.3	593.3	595.4	596.4	596.4	596.4	596.4	596.4
32.5°	576.0	578.2	580.5	581.8	582.2	582.6	583.0	583.4
35°	553.6	556.2	558.8	560.4	561.1	561.8	562.5	563.2
37.5°	530.3	533.2	536.1	538.0	538.5	539.0	539.6	540.1
40°	514.8	517.8	520.7	522.5	523.2	523.9	524.5	525.2
42.5°	498.7	501.9	505.1	507.2	508.2	509.1	510.1	511.0
45°	474.5	477.8	481.1	483.4	484.7	486.1	487.6	488.9
47.5°	450.2	453.8	457.5	459.9	460.9	462.0	463.1	464.1
50°	433.3	437.4	441.3	443.8	445.0	446.3	447.5	448.7
52.5°	416.4	420.4	424.5	427.3	428.8	430.2	431.7	433.2
55°	390.6	395.3	399.9	402.9	404.3	405.7	407.1	408.5
57.5°	364.5	369.1	373.8	376.9	378.5	380.1	381.7	383.3
60°	346.2	350.9	355.8	359.1	361.0	362.8	364.8	366.7
62.5°	328.8	333.7	338.4	341.7	343.5	345.2	347.0	348.7
65°	301.1	306.3	311.5	315.0	316.7	318.4	320.1	321.8
67.5°	273.7	279.3	285.0	288.5	289.9	291.3	292.9	294.3
70°	255.5	260.9	266.5	270.0	271.8	273.5	275.2	276.9
72.5°	237.1	242.8	248.4	252.2	253.9	255.6	257.3	259.0
75°	209.3	215.1	220.8	224.6	226.6	228.7	230.8	232.9
77.5°	183.4	189.3	195.3	199.1	200.8	202.3	203.9	205.5
80°	166.4	172.3	178.1	181.9	183.6	185.3	187.0	188.7
82.5°	151.0	156.7	162.6	166.4	168.1	169.9	171.6	173.3
85°	129.3	135.1	141.0	144.7	146.4	148.1	149.9	151.6
87.5°	118.1	124.2	130.4	134.3	136.1	138.0	139.9	141.7
90°	138.4	145.5	152.8	157.5	160.0	162.4	164.7	167.1
92.5°	154.5	161.3	168.1	172.1	173.3	174.4	175.6	176.8
95°	202.7	209.3	216.0	220.3	222.0	223.7	225.4	227.1
97.5°	260.7	267.4	274.1	278.2	279.8	281.3	283.0	284.6
100°	303.2	309.1	315.2	319.3	321.7	324.2	326.6	328.9
102.5°	352.7	358.6	364.5	368.2	369.8	371.4	372.9	374.6
105°	427.1	431.8	436.7	440.2	442.4	444.6	446.9	449.1
107.5°	507.8	513.4	519.1	522.5	523.6	524.7	525.8	526.9
110°	562.2	567.9	573.8	577.0	577.7	578.5	579.2	579.9



TEST NUMBER: P332147-840

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	616.0	622.0	627.9	631.6	632.9	634.3	635.7	637.0
115°	698.6	703.1	707.6	710.3	711.3	712.4	713.5	714.5
117.5°	781.9	785.9	789.9	792.1	792.5	792.9	793.3	793.8
120°	837.7	841.3	845.0	847.0	847.5	848.1	848.6	849.1
122.5°	894.1	897.1	900.0	901.6	901.9	902.1	902.4	902.6
125°	978.0	980.3	982.5	983.5	983.4	983.2	983.1	982.9
127.5°	1060.8	1062.3	1063.8	1064.4	1064.0	1063.6	1063.2	1062.8
130°	1115.8	1117.6	1119.5	1119.8	1118.5	1117.2	1115.9	1114.5
132.5°	1169.1	1170.6	1172.2	1172.6	1171.8	1171.2	1170.5	1169.9
135°	1249.3	1251.0	1252.7	1253.7	1253.9	1254.2	1254.3	1254.5
137.5°	1327.9	1329.1	1330.4	1330.9	1330.4	1330.0	1329.6	1329.2
140°	1379.7	1381.9	1384.1	1384.5	1383.0	1381.5	1380.0	1378.5
142.5°	1427.7	1429.8	1431.7	1432.2	1431.3	1430.3	1429.3	1428.4
145°	1500.6	1501.6	1502.6	1502.8	1502.2	1501.5	1500.8	1500.2
147.5°	1569.6	1570.0	1570.4	1569.9	1568.5	1567.1	1565.7	1564.3
150°	1612.7	1612.7	1612.7	1611.8	1610.1	1608.4	1606.8	1605.1
152.5°	1652.7	1653.3	1653.9	1653.3	1651.5	1649.8	1648.2	1646.5
155°	1711.3	1712.6	1714.0	1713.5	1711.1	1708.8	1706.4	1704.0
157.5°	1761.7	1763.1	1764.5	1764.3	1762.4	1760.5	1758.6	1756.8
160°	1792.7	1794.4	1796.0	1796.2	1794.9	1793.5	1792.2	1790.8
162.5°	1821.9	1823.6	1825.3	1825.1	1822.9	1820.8	1818.6	1816.4
165°	1858.9	1860.9	1862.9	1862.8	1860.4	1858.1	1855.6	1853.3
167.5°	1888.9	1891.0	1893.0	1893.0	1891.0	1888.9	1886.7	1884.6
170°	1905.2	1907.6	1910.0	1910.0	1907.6	1905.2	1902.9	1900.5
172.5°	1918.0	1920.2	1922.3	1922.2	1919.8	1917.4	1915.0	1912.7
175°	1932.0	1934.0	1936.0	1935.8	1933.5	1931.1	1928.7	1926.4
177.5°	1938.1	1939.7	1941.4	1941.3	1939.3	1937.4	1935.6	1933.7
180°	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5	1938.5

(END OF REPORT)