

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: P332149-840

Luminaire Tested: **S123DIW-S560D1535U840-4F0-1E-UDD-F1**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P332149-840  
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-F1  
Description: DEFINE 3 DIRECT-INDIRECT WALL MOUNT LED LUMINAIRE  
DOWNLIGHT 560 LUMENS PER FOOT, FLUSH 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: 7717.8 lumens  
Efficiency: N/A  
Efficacy: 127.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.18 / 1.31  
Luminous Opening: Rectangular (W 0.25' x L: 4' x H: 0')  
CIE Type: Semi-Indirect

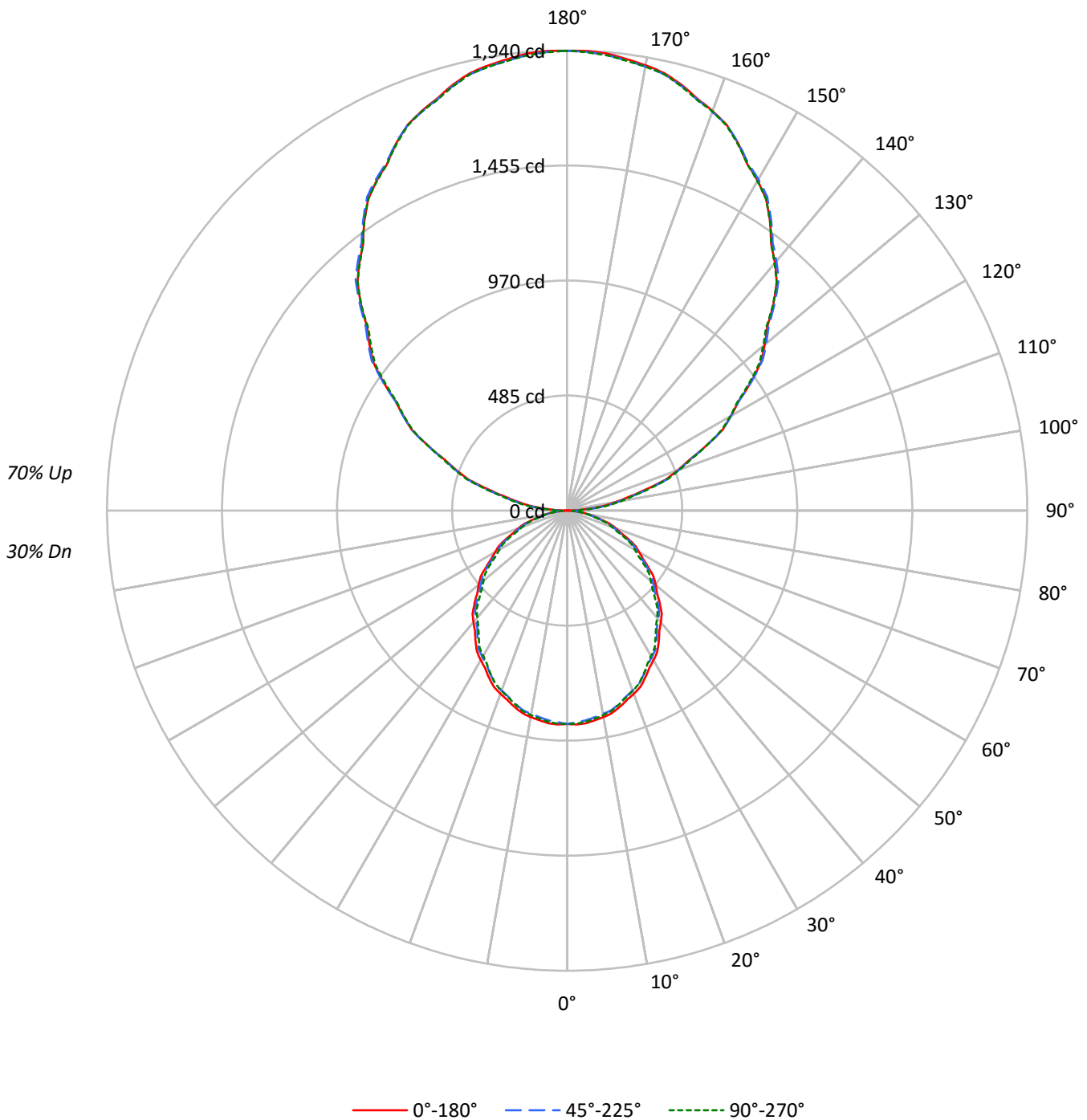
Input Watts (W): 60.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	102	102	102	102	92	92	92	92	72	72	72	55	55	55	38	38	38	30
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	34	33	32	25
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	30	28	27	21
3	77	68	61	56	69	62	55	51	49	45	41	37	34	32	26	24	23	18
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20	15
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17	13
6	60	48	40	34	53	43	37	32	35	30	26	27	23	20	19	17	15	12
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13	10
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12	9
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11	8
10	44	32	25	21	40	30	23	19	24	19	16	19	15	13	14	11	10	8

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

	0°	45°	90°
0°	9684	9684	9684
5°	9729	9596	9662
10°	9664	9512	9571
15°	9551	9404	9423
20°	9419	9251	9260
25°	9242	9069	9049
30°	9047	8866	8797
35°	8843	8650	8539
40°	8630	8413	8283
45°	8397	8196	7995
50°	8162	7927	7708
55°	7854	7651	7418
60°	7543	7326	7093
65°	7272	6976	6757
70°	6864	6571	6279
75°	6276	6047	5793
80°	5659	5424	5368
85°	4965	4780	4594



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	84.7	1.1
10°-20°	239.3	3.1
20°-30°	353.5	4.6
30°-40°	412.9	5.3
40°-50°	415.1	5.4
50°-60°	364.6	4.7
60°-70°	271.7	3.5
70°-80°	154.8	2.0
80°-90°	50.2	0.7
90°-100°	126.3	1.6
100°-110°	378.0	4.9
110°-120°	642.9	8.3
120°-130°	845.6	11.0
130°-140°	950.5	12.3
140°-150°	934.3	12.1
150°-160°	786.5	10.2
160°-170°	523.6	6.8
170°-180°	183.3	2.4
0°-30°	677.5	8.8
0°-40°	1090.4	14.1
0°-60°	1870.2	24.2
0°-90°	2346.8	30.4
90°-120°	1147.2	14.9
90°-150°	3877.6	50.2
90°-180°	5371.0	69.6
0°-180°	7717.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	900	900	900	900	900	
5°	900	896	888	895	894	85
15°	857	854	844	850	846	242
25°	778	773	764	764	762	358
35°	673	668	658	654	650	421
45°	552	548	538	529	525	426
55°	418	417	408	399	395	375
65°	286	281	274	268	265	282
75°	151	148	145	142	139	161
85°	40	39	39	37	37	44
90°	2	17	37	42	46	8
95°	90	101	113	118	119	101
105°	343	346	359	360	362	367
115°	647	651	649	650	649	640
125°	947	951	949	943	936	844
135°	1229	1238	1237	1231	1227	947
145°	1491	1494	1498	1497	1491	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°	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7
2.5°	902.7	902.2	901.7	901.1	900.6	899.5	898.0	896.5	895.0	893.5	894.8
5°	900.4	899.6	898.7	897.9	897.0	895.6	893.7	891.8	890.0	888.1	889.8
7.5°	891.6	890.8	889.9	889.1	888.2	886.8	884.8	882.8	880.9	879.0	880.5
10°	884.2	883.3	882.5	881.6	880.8	879.2	877.0	874.7	872.5	870.3	871.8
12.5°	874.3	873.5	872.8	872.1	871.4	870.0	867.9	865.8	863.7	861.6	862.7
15°	857.1	856.5	855.8	855.1	854.3	852.9	850.7	848.5	846.2	843.9	845.4
17.5°	837.2	836.3	835.4	834.5	833.5	832.0	829.8	827.6	825.4	823.0	824.0
20°	822.3	821.3	820.2	819.2	818.2	816.6	814.4	812.1	809.8	807.6	808.3
22.5°	805.6	804.6	803.5	802.5	801.4	799.8	797.6	795.4	793.1	790.9	791.4
25°	778.2	777.2	776.2	775.2	774.1	772.4	770.2	768.0	765.8	763.6	763.7
27.5°	749.0	748.0	747.0	746.0	745.0	743.3	740.8	738.5	736.1	733.7	733.8
30°	727.9	727.1	726.2	725.4	724.5	722.9	720.4	718.0	715.7	713.3	713.3
32.5°	706.9	705.8	704.6	703.5	702.4	700.8	699.0	697.1	695.3	693.5	692.5
35°	673.0	672.0	671.0	669.9	668.9	667.2	665.0	662.8	660.6	658.3	657.3
37.5°	638.3	637.0	635.7	634.4	633.1	631.4	629.0	626.8	624.5	622.3	621.1
40°	614.2	613.2	612.2	611.2	610.1	608.3	605.9	603.6	601.2	598.7	597.3
42.5°	590.1	589.0	587.7	586.5	585.4	583.6	581.2	578.9	576.4	574.0	572.6
45°	551.6	550.9	550.2	549.5	548.8	547.3	545.1	542.9	540.7	538.4	536.3
47.5°	513.3	512.3	511.4	510.4	509.4	507.8	505.7	503.6	501.5	499.4	497.4
50°	487.4	486.5	485.6	484.7	483.9	482.4	480.1	477.9	475.6	473.4	471.5
52.5°	460.1	459.5	459.0	458.4	457.8	456.3	453.9	451.6	449.2	446.9	445.2
55°	418.5	418.3	418.2	418.0	417.8	416.6	414.3	412.1	409.9	407.7	405.8
57.5°	378.9	378.3	377.7	377.2	376.6	375.4	373.5	371.8	370.0	368.2	366.6
60°	350.4	350.2	350.1	349.9	349.7	348.6	346.6	344.5	342.4	340.3	338.8
62.5°	325.1	324.6	324.2	323.8	323.3	322.0	319.9	317.9	315.8	313.8	312.3
65°	285.5	284.6	283.8	282.9	282.1	280.7	279.0	277.3	275.6	273.9	272.5
67.5°	243.5	242.8	242.0	241.3	240.4	239.4	238.1	236.8	235.5	234.3	233.1
70°	218.1	217.1	216.1	215.1	214.0	213.0	212.0	211.0	209.8	208.8	207.6
72.5°	191.6	190.8	190.1	189.2	188.5	187.5	186.4	185.2	184.0	182.9	181.8
75°	150.9	150.2	149.5	148.8	148.1	147.5	146.9	146.4	145.9	145.4	144.6
77.5°	114.8	114.4	114.0	113.7	113.3	112.8	112.2	111.6	110.9	110.3	109.8
80°	91.3	90.8	90.3	89.8	89.2	88.8	88.5	88.1	87.8	87.5	87.3
82.5°	68.4	68.3	68.2	68.1	68.0	67.9	67.9	67.8	67.7	67.7	67.3
85°	40.2	39.9	39.6	39.2	38.9	38.7	38.7	38.7	38.7	38.7	38.4
87.5°	16.4	16.7	17.0	17.2	17.5	18.0	18.7	19.4	20.2	20.9	21.1
90°	1.5	4.9	8.3	11.7	15.0	19.0	23.3	27.8	32.1	36.6	37.9
92.5°	36.9	39.2	41.4	43.7	46.0	48.5	51.0	53.4	55.9	58.5	59.6
95°	89.9	92.2	94.6	96.9	99.4	101.9	104.5	107.2	110.0	112.7	114.0
97.5°	159.6	161.4	163.1	164.9	166.6	168.4	170.5	172.4	174.4	176.3	177.9
100°	207.1	209.1	211.2	213.2	215.2	217.1	218.7	220.5	222.2	223.9	224.9
102.5°	262.0	263.2	264.4	265.6	266.8	268.5	270.7	273.0	275.2	277.4	278.5
105°	342.6	343.4	344.0	344.7	345.4	347.2	350.2	353.3	356.4	359.4	359.4
107.5°	436.5	436.9	437.3	437.7	438.1	438.9	440.1	441.3	442.5	443.7	444.8
110°	494.9	495.6	496.2	497.0	497.7	498.3	499.0	499.7	500.3	501.0	502.4



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	555.8	556.2	556.6	557.0	557.4	557.7	557.8	558.0	558.2	558.3	559.9
115°	647.2	648.2	649.2	650.3	651.3	651.5	650.8	650.1	649.4	648.7	649.0
117.5°	739.2	739.8	740.5	741.2	741.8	741.7	740.9	740.0	739.1	738.3	738.2
120°	796.5	798.5	800.5	802.5	804.6	804.8	803.0	801.3	799.6	798.0	797.6
122.5°	856.2	857.6	859.1	860.6	862.1	862.4	861.5	860.6	859.8	858.9	858.0
125°	947.2	948.2	949.3	950.3	951.3	951.4	950.8	950.1	949.4	948.8	947.4
127.5°	1031.3	1033.4	1035.6	1037.7	1040.0	1040.7	1039.9	1039.2	1038.4	1037.6	1035.7
130°	1087.3	1090.0	1092.7	1095.4	1098.1	1098.9	1097.9	1096.9	1095.9	1094.9	1093.6
132.5°	1143.4	1146.0	1148.7	1151.4	1154.2	1155.2	1154.4	1153.7	1152.9	1152.2	1150.5
135°	1228.9	1230.9	1232.9	1235.0	1237.1	1237.9	1237.6	1237.2	1236.9	1236.6	1235.2
137.5°	1308.1	1309.8	1311.5	1313.2	1314.8	1316.2	1317.1	1317.9	1318.8	1319.7	1318.3
140°	1362.9	1364.6	1366.3	1368.0	1369.7	1370.7	1371.1	1371.4	1371.7	1372.1	1371.7
142.5°	1412.9	1414.5	1416.2	1418.0	1419.7	1420.8	1421.4	1422.0	1422.6	1423.2	1422.9
145°	1490.9	1491.6	1492.2	1492.9	1493.6	1494.4	1495.4	1496.4	1497.4	1498.4	1498.1
147.5°	1559.0	1560.2	1561.5	1562.8	1564.0	1565.0	1566.0	1566.9	1567.8	1568.8	1568.8
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°	899.7	899.7	899.7	899.7	899.7	899.7	899.7	899.7
2.5°	896.3	897.6	899.0	899.6	899.5	899.3	899.2	899.1
5°	891.5	893.2	894.9	895.6	895.2	894.9	894.6	894.2
7.5°	882.0	883.5	885.1	885.8	885.6	885.3	885.1	884.9
10°	873.3	874.9	876.5	877.1	876.8	876.4	876.1	875.7
12.5°	863.8	865.1	866.2	866.6	866.4	866.2	866.0	865.8
15°	846.8	848.1	849.5	849.6	848.6	847.6	846.6	845.6
17.5°	825.1	826.0	827.0	827.2	826.9	826.5	826.1	825.7
20°	809.0	809.7	810.3	810.4	809.9	809.4	808.9	808.4
22.5°	792.0	792.5	793.1	793.0	792.4	791.7	791.1	790.4
25°	763.9	764.1	764.2	764.1	763.6	763.1	762.4	761.9
27.5°	734.0	734.1	734.2	734.0	733.3	732.7	732.0	731.3
30°	713.3	713.3	713.3	712.7	711.4	710.2	709.0	707.8
32.5°	691.6	690.5	689.5	688.7	688.1	687.5	686.8	686.2
35°	656.2	655.2	654.2	653.3	652.4	651.6	650.7	649.8
37.5°	619.8	618.5	617.3	616.4	615.9	615.3	614.8	614.2
40°	596.0	594.6	593.3	592.2	591.5	590.9	590.2	589.5
42.5°	571.3	569.9	568.5	567.4	566.7	566.1	565.4	564.7
45°	534.3	532.2	530.2	528.7	527.9	526.9	526.1	525.2
47.5°	495.3	493.3	491.3	489.9	489.2	488.4	487.7	486.9
50°	469.7	467.8	465.9	464.4	463.3	462.3	461.3	460.3
52.5°	443.6	442.0	440.4	439.0	438.0	437.0	436.0	434.9
55°	403.8	402.0	400.1	398.7	397.9	397.0	396.2	395.3
57.5°	364.9	363.1	361.5	360.1	359.1	358.2	357.2	356.2
60°	337.3	335.8	334.2	333.0	332.1	331.2	330.4	329.5
62.5°	310.6	309.1	307.6	306.5	305.9	305.4	304.8	304.2
65°	271.0	269.7	268.3	267.4	266.9	266.4	265.9	265.3
67.5°	231.9	230.7	229.4	228.4	227.7	227.0	226.3	225.6
70°	206.4	205.3	204.1	203.0	202.2	201.3	200.5	199.5
72.5°	180.8	179.7	178.6	177.8	177.4	176.9	176.5	176.0
75°	143.7	142.9	142.0	141.3	140.8	140.3	139.8	139.3
77.5°	109.2	108.6	108.0	107.7	107.7	107.7	107.7	107.7
80°	87.1	86.8	86.7	86.6	86.6	86.6	86.6	86.6
82.5°	67.0	66.7	66.3	66.1	66.0	65.8	65.7	65.6
85°	38.0	37.7	37.3	37.2	37.2	37.2	37.2	37.2
87.5°	21.2	21.3	21.4	21.6	21.7	21.8	22.0	22.1
90°	39.3	40.6	42.0	43.0	43.6	44.3	45.0	45.6
92.5°	60.6	61.7	62.8	63.1	62.7	62.3	61.9	61.5
95°	115.4	116.7	118.1	118.8	118.8	118.8	118.8	118.8
97.5°	179.5	181.0	182.6	183.3	183.2	183.0	182.9	182.8
100°	225.9	226.9	227.9	228.7	229.4	230.1	230.8	231.5
102.5°	279.5	280.5	281.6	282.0	281.9	281.7	281.6	281.4
105°	359.4	359.4	359.4	359.7	360.4	361.1	361.7	362.4
107.5°	446.0	447.0	448.1	448.4	448.0	447.6	447.2	446.8
110°	503.7	505.0	506.4	506.8	506.0	505.4	504.7	504.0





TEST NUMBER: P332149-840

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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°
112.5°	561.5	563.1	564.7	565.5	565.4	565.2	565.1	564.9
115°	649.4	649.7	650.1	650.1	649.7	649.4	649.0	648.7
117.5°	738.1	738.1	738.0	737.5	736.5	735.6	734.7	733.7
120°	797.3	797.0	796.6	796.1	795.5	794.8	794.1	793.3
122.5°	857.1	856.3	855.4	854.4	853.5	852.5	851.6	850.6
125°	946.0	944.6	943.3	941.9	940.6	939.3	937.9	936.5
127.5°	1033.9	1032.0	1030.1	1028.3	1026.8	1025.2	1023.7	1022.1
130°	1092.2	1090.9	1089.5	1087.6	1085.3	1082.9	1080.6	1078.1
132.5°	1148.9	1147.3	1145.7	1144.0	1142.2	1140.3	1138.4	1136.6
135°	1233.9	1232.4	1231.1	1230.1	1229.4	1228.7	1228.1	1227.4
137.5°	1316.9	1315.5	1314.0	1312.6	1311.3	1310.1	1308.8	1307.5
140°	1371.4	1371.1	1370.7	1369.4	1367.0	1364.6	1362.2	1359.9
142.5°	1422.6	1422.2	1421.9	1420.8	1419.0	1417.1	1415.3	1413.5
145°	1497.7	1497.4	1497.1	1496.2	1494.9	1493.6	1492.2	1490.9
147.5°	1568.8	1568.8	1568.8	1567.8	1565.8	1563.8	1561.7	1559.6
150°	1612.7	1612.7	1612.7	1611.6	1609.6	1607.6	1605.6	1603.6
152.5°	1652.7	1653.3	1653.9	1653.3	1651.4	1649.7	1647.9	1646.2
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)