

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: FAIL-SAFE

Report Number: P188255

Luminaire Tested: **MPBL-3-LD4-UNV-2STD-2STD-40**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P188255  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27373)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MPBL-3-LD4-UNV-2STD-2STD-40  
Description:  
Light Source: (336) NICHIA ELM 4000K LED  
2UT217042A8404A  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

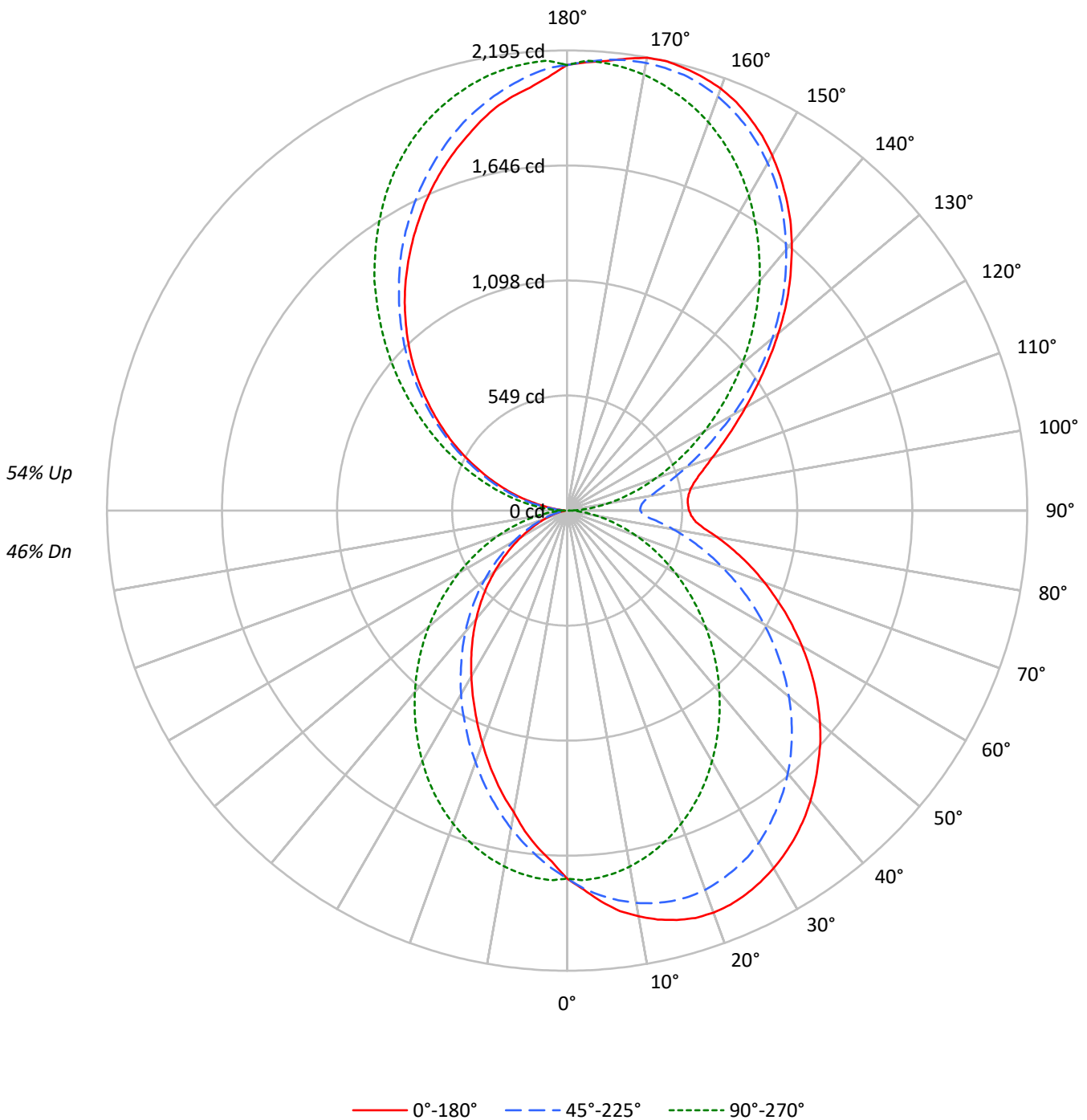
Lumens per Lamp: N/A  
Luminaire Lumens: 10534.0 lumens  
Efficiency: N/A  
Efficacy: 93.2 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.18 / 1.33  
Luminous Opening: Rectangular w/ Sides (W: 3' x L: 0.42' x H: 0.29')  
CIE Type: General Diffuse

Input Watts (W): 113  
Input Voltage (V): NR  
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	106	106	106	106	98	98	98	98	81	81	81		66	66	66		53	53	53	46
1	96	92	88	84	88	84	81	78	70	68	65		57	56	54		46	44	43	38
2	88	80	74	68	80	73	68	63	61	57	54		50	47	45		40	38	36	31
3	80	70	63	57	73	64	58	53	54	49	45		44	41	38		35	33	31	26
4	73	62	54	48	67	57	50	45	48	43	38		39	35	32		31	29	26	22
5	67	55	47	41	61	51	44	38	43	37	33		35	31	28		28	25	23	19
6	62	49	41	35	56	46	38	33	38	33	29		32	28	24		26	22	20	17
7	57	45	37	31	52	41	34	29	35	29	25		29	25	21		23	20	18	15
8	53	40	33	27	48	37	30	26	32	26	22		26	22	19		21	18	16	13
9	49	37	29	24	45	34	27	23	29	24	20		24	20	17		20	17	14	12
10	46	34	27	22	42	31	25	20	27	22	18		22	18	15		18	15	13	11

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

	0°	90°	180°
0°	15113	15113	15113
5°	15252	15065	13132
10°	15296	14820	11373
15°	15178	14486	9947
20°	14904	14073	8633
25°	14466	13580	7474
30°	13952	13007	6470
35°	13395	12386	5583
40°	12789	11740	4779
45°	12138	11061	4017
50°	11500	10349	3292
55°	10797	9588	2613
60°	10071	8785	1981
65°	9342	7931	1411
70°	8626	6948	934
75°	7931	5852	544
80°	7241	4593	245
85°	6758	3149	109



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	165.8	1.6
10°-20°	470.1	4.5
20°-30°	696.7	6.6
30°-40°	816.8	7.8
40°-50°	824.6	7.8
50°-60°	729.0	6.9
60°-70°	563.0	5.3
70°-80°	376.4	3.6
80°-90°	223.5	2.1
90°-100°	223.7	2.1
100°-110°	392.7	3.7
110°-120°	620.6	5.9
120°-130°	837.9	8.0
130°-140°	979.1	9.3
140°-150°	989.9	9.4
150°-160°	850.4	8.1
160°-170°	572.7	5.4
170°-180°	201.1	1.9
0°-30°	1332.6	12.7
0°-40°	2149.4	20.4
0°-60°	3703.0	35.2
0°-90°	4866.0	46.2
90°-120°	1236.9	11.7
90°-150°	4043.8	38.4
90°-180°	5668.0	53.8
0°-180°	10534.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1755	1755	1755	1755	1755	
5°	1872	1843	1758	1654	1612	182
15°	2022	1928	1667	1412	1325	572
25°	2020	1889	1494	1142	1043	931
35°	1899	1741	1258	880	791	1188
45°	1694	1516	997	633	561	1309
55°	1438	1236	727	401	348	1286
65°	1147	934	470	203	173	1136
75°	861	647	240	71	59	911
85°	616	392	67	12	10	527
90°	581	349	7	13	16	320
95°	577	357	98	31	20	476
105°	652	488	316	241	209	695
115°	847	746	598	495	469	843
125°	1139	1094	920	786	758	1022
135°	1496	1459	1259	1094	1056	1153
145°	1822	1781	1585	1395	1342	1139
155°	2065	2022	1864	1676	1610	951
165°	2183	2152	2052	1915	1847	617
175°	2153	2159	2142	2083	2025	207
180°	2125	2125	2125	2125	2125	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1
2.5°	1809.3	1805.2	1808.5	1809.3	1814.2	1816.7	1815.0	1818.3	1816.7	1810.1	1804.4
5°	1872.5	1869.2	1869.2	1870.0	1869.2	1869.2	1865.9	1865.9	1861.0	1851.2	1843.0
7.5°	1926.7	1924.2	1922.6	1919.3	1918.5	1916.8	1912.7	1908.6	1900.4	1887.3	1875.0
10°	1965.3	1963.6	1962.8	1960.3	1956.2	1953.8	1949.7	1943.1	1931.6	1916.0	1900.4
12.5°	1998.1	1995.6	1994.0	1989.9	1985.8	1982.5	1978.4	1969.4	1956.2	1937.4	1918.5
15°	2021.9	2020.3	2018.6	2013.7	2008.0	2005.5	2000.6	1989.1	1971.8	1951.3	1928.3
17.5°	2037.5	2035.0	2032.6	2027.7	2021.9	2017.8	2012.9	1998.9	1980.9	1957.1	1931.6
20°	2040.8	2038.3	2035.9	2030.1	2023.6	2018.6	2012.9	1997.3	1977.6	1953.8	1925.0
22.5°	2035.0	2032.6	2028.5	2022.7	2013.7	2008.0	2002.2	1985.8	1965.3	1940.6	1910.3
25°	2019.5	2017.8	2012.9	2007.1	1997.3	1991.5	1985.8	1967.7	1946.4	1920.9	1888.9
27.5°	1997.3	1996.5	1991.5	1984.2	1975.1	1971.0	1963.6	1944.7	1922.6	1896.3	1863.5
30°	1970.2	1969.4	1963.6	1956.2	1945.6	1940.6	1933.3	1914.4	1890.6	1863.5	1829.0
32.5°	1936.5	1936.5	1930.8	1921.8	1909.4	1904.5	1896.3	1876.6	1851.2	1823.3	1788.0
35°	1898.8	1898.0	1892.2	1883.2	1868.4	1862.7	1854.4	1831.5	1806.8	1778.1	1741.2
37.5°	1855.3	1854.4	1848.7	1838.0	1823.3	1817.5	1808.5	1784.7	1759.2	1729.7	1692.7
40°	1806.0	1805.2	1799.4	1788.8	1772.4	1769.1	1756.8	1732.1	1705.9	1676.3	1637.7
42.5°	1751.8	1751.8	1745.3	1733.8	1719.8	1713.3	1700.1	1675.5	1648.4	1618.0	1579.4
45°	1694.4	1694.4	1687.8	1676.3	1660.7	1653.3	1640.2	1614.7	1586.8	1555.6	1516.2
47.5°	1638.5	1632.0	1627.1	1613.9	1600.0	1590.1	1576.2	1551.5	1522.0	1489.1	1449.7
50°	1574.5	1567.1	1558.9	1549.1	1534.3	1523.6	1508.8	1483.4	1454.7	1420.2	1381.6
52.5°	1507.2	1500.6	1492.4	1479.3	1462.1	1454.7	1439.1	1414.4	1384.9	1348.8	1309.4
55°	1438.2	1430.9	1424.3	1409.5	1394.7	1384.1	1367.6	1343.0	1313.5	1275.7	1235.5
57.5°	1366.0	1359.4	1351.2	1340.6	1322.5	1311.0	1294.6	1268.3	1237.9	1201.0	1160.8
60°	1293.8	1286.4	1278.2	1266.7	1248.6	1237.1	1220.7	1192.8	1162.4	1125.5	1085.3
62.5°	1219.9	1213.3	1205.1	1189.5	1174.7	1162.4	1149.3	1118.1	1087.7	1050.0	1009.7
65°	1146.8	1139.4	1132.0	1116.4	1100.8	1088.5	1075.4	1044.2	1013.0	975.2	934.2
67.5°	1072.9	1067.2	1058.2	1042.6	1022.9	1014.7	1001.5	970.3	939.1	900.5	860.3
70°	1001.5	995.8	986.7	971.1	952.3	942.4	929.3	897.3	866.1	828.3	787.3
72.5°	930.9	926.0	916.1	899.7	882.5	871.8	859.5	829.9	794.6	755.2	716.7
75°	861.1	853.8	846.4	829.9	812.7	801.2	787.3	759.3	724.9	686.3	646.9
77.5°	792.2	788.1	777.4	761.0	743.7	732.3	721.6	691.2	655.9	616.5	578.7
80°	725.7	720.8	710.1	693.7	675.6	664.9	652.6	623.9	589.4	550.8	513.9
82.5°	660.0	655.9	645.2	628.8	610.8	600.1	587.8	558.2	524.6	486.8	450.7
85°	615.7	609.9	600.9	585.3	564.0	550.8	537.7	505.7	468.7	430.2	391.6
87.5°	593.5	589.4	578.7	563.1	540.2	527.0	512.3	479.4	441.7	401.4	359.6
90°	581.2	577.1	567.3	550.8	527.8	514.7	500.8	467.1	430.2	391.6	348.9
92.5°	577.1	573.8	564.0	547.6	525.4	511.4	497.5	464.6	428.5	389.9	349.7
95°	577.1	573.8	564.8	548.4	526.2	513.9	499.9	467.9	433.4	395.7	357.1
97.5°	584.5	581.2	571.4	556.6	534.4	522.9	509.0	478.6	445.8	410.5	374.3
100°	598.4	596.0	587.0	572.2	550.8	540.2	527.0	498.3	467.1	436.7	403.1
102.5°	620.6	619.0	609.1	596.0	576.3	566.4	555.8	528.7	499.9	472.0	441.7
105°	651.8	650.2	642.0	628.8	610.8	602.6	591.9	566.4	541.8	515.5	488.4
107.5°	690.4	688.7	679.7	669.0	652.6	645.2	636.2	612.4	590.2	567.3	542.6
110°	735.5	734.7	725.7	716.7	701.1	695.3	687.1	665.8	646.9	625.5	604.2



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**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	788.1	787.3	778.2	770.8	756.1	752.0	743.7	725.7	709.3	690.4	671.5
115°	847.2	846.4	837.3	831.6	820.9	814.3	810.2	794.6	777.4	761.0	746.2
117.5°	911.2	910.4	903.0	898.1	887.4	883.3	876.7	862.8	852.1	838.2	821.7
120°	981.8	981.8	973.6	970.3	962.1	958.0	953.1	944.1	931.7	921.1	912.0
122.5°	1057.3	1057.3	1050.0	1043.4	1040.9	1037.6	1036.8	1026.1	1017.1	1008.9	1001.5
125°	1138.6	1137.8	1131.2	1125.5	1123.8	1123.0	1123.0	1115.6	1108.2	1100.0	1093.5
127.5°	1224.8	1224.0	1218.2	1213.3	1214.1	1213.3	1215.0	1203.5	1200.2	1192.8	1185.4
130°	1315.1	1315.1	1309.4	1304.4	1305.3	1305.3	1306.1	1295.4	1292.1	1283.9	1277.3
132.5°	1407.0	1402.1	1401.3	1396.4	1396.4	1397.2	1397.2	1387.3	1384.1	1375.0	1365.2
135°	1495.7	1495.7	1491.6	1485.9	1485.9	1485.9	1486.7	1476.8	1473.5	1466.2	1458.8
137.5°	1581.9	1579.4	1578.6	1572.9	1573.7	1572.1	1569.6	1563.8	1560.6	1552.4	1543.3
140°	1667.3	1664.0	1663.2	1658.2	1657.4	1655.8	1653.3	1647.6	1642.7	1633.6	1624.6
142.5°	1748.5	1743.6	1742.8	1737.9	1736.2	1734.6	1732.1	1726.4	1722.3	1713.3	1705.0
145°	1821.6	1819.1	1817.5	1812.6	1811.8	1810.9	1808.5	1802.7	1798.6	1790.4	1781.4
147.5°	1891.4	1888.1	1888.1	1884.0	1883.2	1881.5	1884.0	1875.8	1870.9	1861.8	1852.0
150°	1956.2	1953.0	1951.3	1947.2	1946.4	1943.9	1945.6	1937.4	1931.6	1924.2	1913.6
152.5°	2015.3	2012.9	2009.6	2004.7	2002.2	2000.6	2001.4	1992.4	1985.8	1980.0	1970.2
155°	2064.6	2062.1	2060.5	2056.4	2054.8	2052.3	2053.9	2045.7	2040.8	2031.8	2021.9
157.5°	2108.9	2106.5	2101.5	2100.7	2098.3	2097.4	2095.8	2090.9	2082.7	2076.9	2065.4
160°	2142.6	2140.1	2136.8	2134.4	2132.7	2131.1	2129.5	2123.7	2118.8	2112.2	2102.4
162.5°	2165.6	2163.1	2160.6	2158.2	2156.5	2155.7	2154.1	2150.0	2145.9	2139.3	2131.1
165°	2182.8	2181.2	2177.9	2175.4	2174.6	2174.6	2173.8	2168.9	2164.8	2159.8	2151.6
167.5°	2195.1	2192.7	2188.6	2186.1	2184.5	2184.5	2182.0	2178.7	2173.8	2169.7	2162.3
170°	2193.5	2189.4	2186.1	2184.5	2182.0	2182.0	2180.4	2178.7	2175.4	2173.0	2168.0
172.5°	2173.8	2170.5	2169.7	2169.7	2170.5	2173.0	2173.0	2173.0	2171.3	2171.3	2167.2
175°	2153.3	2150.8	2151.6	2153.3	2155.7	2159.0	2159.0	2161.5	2159.8	2160.6	2159.0
177.5°	2140.1	2136.0	2136.0	2135.2	2136.0	2138.5	2137.7	2140.9	2140.9	2142.6	2142.6
180°	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1
2.5°	1801.1	1795.3	1787.1	1777.3	1773.2	1770.7	1766.6	1766.6	1765.8	1765.0	1760.0
5°	1834.7	1824.9	1812.6	1797.8	1791.2	1785.5	1776.5	1770.7	1764.1	1757.6	1746.1
7.5°	1862.7	1847.9	1831.5	1810.9	1801.9	1793.7	1778.9	1768.3	1755.9	1744.4	1727.2
10°	1884.0	1865.1	1843.0	1819.1	1806.8	1795.3	1775.6	1760.0	1741.2	1723.9	1701.8
12.5°	1898.8	1876.6	1849.5	1820.0	1806.0	1791.2	1765.8	1744.4	1720.6	1698.5	1671.4
15°	1905.3	1879.1	1848.7	1814.2	1798.6	1781.4	1751.0	1724.7	1695.2	1667.3	1633.6
17.5°	1904.5	1874.1	1839.7	1801.9	1783.8	1763.3	1729.7	1698.5	1664.8	1631.2	1593.4
20°	1896.3	1861.8	1824.9	1783.8	1763.3	1740.3	1701.8	1665.6	1626.2	1590.1	1548.2
22.5°	1879.1	1843.0	1802.7	1758.4	1736.2	1712.4	1668.9	1629.5	1584.4	1544.1	1498.2
25°	1856.1	1819.1	1774.8	1728.0	1704.2	1678.0	1632.0	1586.8	1538.4	1494.1	1444.8
27.5°	1827.4	1788.0	1740.3	1691.1	1665.6	1638.5	1589.3	1540.9	1487.5	1439.9	1388.2
30°	1791.2	1751.0	1700.9	1649.2	1622.9	1594.2	1541.7	1490.0	1433.3	1381.6	1328.2
32.5°	1748.5	1705.9	1656.6	1602.4	1574.5	1545.0	1490.8	1435.8	1375.0	1320.9	1265.9
35°	1700.9	1657.4	1607.4	1550.7	1522.8	1491.6	1434.1	1375.9	1315.1	1258.5	1201.8
37.5°	1650.9	1605.7	1554.8	1496.5	1467.8	1439.1	1376.7	1316.7	1252.7	1195.3	1137.0
40°	1595.0	1549.1	1496.5	1438.2	1408.7	1379.1	1317.6	1253.5	1188.7	1129.6	1071.3
42.5°	1535.9	1489.1	1435.8	1376.7	1347.1	1316.7	1254.4	1192.8	1126.3	1063.9	1004.8
45°	1471.9	1425.1	1372.6	1311.8	1282.3	1247.8	1186.2	1123.0	1059.8	996.6	938.3
47.5°	1407.9	1358.6	1305.3	1243.7	1214.1	1182.9	1119.7	1055.7	991.7	929.3	871.0
50°	1338.9	1285.6	1235.5	1173.9	1144.4	1113.2	1050.0	984.3	923.5	862.0	804.5
52.5°	1266.7	1215.0	1161.6	1101.7	1072.9	1045.0	976.9	915.3	854.6	793.8	738.8
55°	1193.6	1141.9	1089.4	1029.4	1000.7	972.8	906.3	847.2	786.4	727.3	673.2
57.5°	1118.1	1066.4	1017.1	955.5	926.8	899.7	837.3	775.8	717.5	660.8	608.3
60°	1042.6	990.8	942.4	881.7	853.8	827.5	762.6	706.0	651.0	596.0	545.1
62.5°	967.0	916.1	864.4	811.9	780.7	755.2	696.1	637.9	585.3	531.1	483.5
65°	892.3	842.3	791.4	735.5	709.3	685.5	628.0	572.2	522.9	470.4	422.8
67.5°	818.5	768.4	718.3	668.2	639.5	616.5	564.0	509.8	457.2	408.8	364.5
70°	743.7	700.2	648.5	600.1	574.6	546.7	495.0	447.4	397.3	349.7	307.8
72.5°	674.0	630.5	579.6	533.6	504.9	481.9	431.8	385.0	339.9	293.1	254.5
75°	605.8	562.3	512.3	466.3	440.8	418.7	371.1	325.1	282.4	239.7	204.4
77.5°	537.7	495.8	448.2	405.5	380.1	357.1	311.9	270.1	228.2	188.8	159.3
80°	472.8	431.8	385.0	344.8	320.2	298.8	256.1	216.7	179.0	143.7	116.6
82.5°	410.5	371.1	325.9	288.1	263.5	244.6	204.4	168.3	133.8	102.6	78.8
85°	353.0	313.6	270.9	233.1	211.8	194.6	156.8	124.8	95.2	67.3	43.5
87.5°	316.1	272.5	229.0	188.0	166.6	149.4	114.9	86.2	59.9	35.3	16.4
90°	307.0	263.5	220.0	177.3	157.6	137.1	99.3	64.0	32.0	7.4	7.4
92.5°	308.7	267.6	225.8	185.5	166.6	149.4	114.1	84.6	59.1	50.1	43.5
95°	317.7	279.1	241.3	204.4	186.3	172.4	141.2	118.2	102.6	97.7	90.3
97.5°	338.2	303.7	267.6	235.6	219.2	208.5	180.6	164.2	152.7	144.5	137.1
100°	370.2	339.0	307.8	276.6	262.7	253.7	230.7	219.2	207.7	197.8	188.8
102.5°	411.3	383.4	353.0	326.7	313.6	307.8	289.0	278.3	266.0	255.3	245.5
105°	461.4	435.9	410.5	385.8	373.5	371.1	356.3	341.5	328.4	316.1	305.4
107.5°	518.0	495.8	469.6	451.5	441.7	440.0	424.4	408.8	394.0	381.7	368.6
110°	582.0	563.1	540.2	524.6	514.7	513.1	494.2	481.1	464.6	449.9	435.9





TEST NUMBER: P188255

CATALOG NUMBER: MPBL-3-LD4-UNV-2STD-2STD-40

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	651.8	636.2	615.7	601.7	591.9	589.4	573.0	555.8	536.9	521.3	509.8
115°	729.0	715.8	697.0	682.2	673.2	669.9	652.6	633.7	617.3	597.6	583.7
117.5°	811.1	801.2	782.3	765.9	756.1	752.8	734.7	715.0	695.3	674.8	660.0
120°	899.7	889.1	869.3	852.9	842.3	839.0	819.3	797.9	777.4	755.2	738.8
122.5°	989.2	978.5	958.0	940.8	930.9	926.0	905.5	882.5	860.3	836.5	818.5
125°	1080.3	1069.7	1048.3	1029.4	1019.6	1013.8	993.3	967.9	944.1	920.2	899.7
127.5°	1172.3	1160.8	1139.4	1120.5	1109.9	1103.3	1082.0	1054.1	1029.4	1004.8	982.6
130°	1263.4	1247.8	1229.7	1210.0	1199.4	1193.6	1170.6	1141.9	1116.4	1090.2	1066.4
132.5°	1350.4	1338.9	1320.9	1300.3	1289.7	1282.3	1255.2	1228.9	1202.6	1175.6	1146.0
135°	1444.0	1428.4	1409.5	1388.2	1376.7	1369.3	1345.5	1314.3	1287.2	1259.3	1229.7
137.5°	1525.3	1512.9	1494.9	1473.5	1461.2	1450.6	1426.8	1398.8	1371.7	1343.0	1313.5
140°	1607.4	1595.0	1577.0	1555.6	1547.4	1533.5	1510.5	1482.6	1455.5	1430.0	1396.4
142.5°	1686.2	1673.8	1655.8	1634.4	1623.8	1613.1	1590.9	1563.0	1536.8	1506.4	1476.8
145°	1763.3	1750.2	1731.3	1710.8	1699.3	1689.4	1667.3	1640.2	1614.7	1585.2	1555.6
147.5°	1833.9	1820.0	1801.9	1781.4	1770.7	1761.7	1740.3	1714.1	1690.3	1659.9	1631.2
150°	1897.1	1884.0	1865.9	1847.9	1839.7	1829.0	1809.3	1783.8	1760.9	1733.8	1703.4
152.5°	1953.8	1940.6	1921.8	1907.8	1900.4	1891.4	1871.7	1848.7	1827.4	1801.9	1772.4
155°	2005.5	1992.4	1976.8	1961.2	1954.6	1947.2	1929.2	1907.8	1888.1	1863.5	1835.6
157.5°	2049.8	2036.7	2019.5	2008.0	2003.9	1996.5	1980.0	1960.3	1943.9	1920.1	1895.5
160°	2087.6	2075.3	2062.1	2049.8	2046.5	2040.0	2025.2	2008.0	1993.2	1971.0	1948.0
162.5°	2118.0	2105.6	2092.5	2083.5	2081.8	2076.1	2062.1	2048.2	2035.0	2015.3	1994.0
165°	2140.1	2127.8	2117.1	2109.8	2108.1	2105.6	2092.5	2080.2	2069.5	2052.3	2034.2
167.5°	2153.3	2142.6	2134.4	2129.5	2129.5	2127.8	2117.1	2108.1	2099.9	2085.1	2069.5
170°	2159.8	2151.6	2145.9	2142.6	2143.4	2143.4	2136.0	2128.6	2122.9	2111.4	2099.1
172.5°	2159.8	2153.3	2150.0	2149.2	2150.0	2150.8	2145.9	2141.8	2138.5	2130.3	2119.6
175°	2153.3	2149.2	2147.5	2148.3	2150.8	2152.4	2150.0	2148.3	2148.3	2141.8	2135.2
177.5°	2139.3	2136.8	2138.5	2141.8	2145.1	2148.3	2148.3	2149.2	2151.6	2148.3	2144.2
180°	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3



TEST NUMBER: P188255

CATALOG NUMBER: MPBL-3-LD4-UNV-2STD-2STD-40

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1
2.5°	1749.4	1740.3	1730.5	1725.6	1722.3	1716.5	1712.4	1709.1	1707.5	1706.7	1700.9
5°	1729.7	1715.7	1700.1	1692.7	1687.0	1678.0	1667.3	1659.9	1654.1	1646.8	1639.4
7.5°	1705.0	1686.2	1664.8	1655.8	1647.6	1633.6	1619.7	1607.4	1598.3	1589.3	1577.0
10°	1673.8	1650.0	1622.1	1613.1	1602.4	1585.2	1567.1	1552.4	1539.2	1524.4	1511.3
12.5°	1638.5	1609.8	1577.8	1566.3	1554.8	1532.6	1511.3	1493.2	1476.8	1459.6	1444.8
15°	1598.3	1565.5	1529.4	1515.4	1502.3	1476.8	1452.2	1431.7	1412.0	1393.9	1377.5
17.5°	1553.2	1516.2	1476.8	1460.4	1447.3	1417.7	1390.6	1367.6	1345.5	1326.6	1311.8
20°	1503.9	1463.7	1421.8	1403.8	1389.0	1356.2	1326.6	1299.5	1277.3	1257.6	1242.0
22.5°	1450.6	1407.9	1362.7	1343.0	1327.4	1292.9	1261.7	1233.0	1212.5	1188.7	1171.4
25°	1394.7	1348.8	1301.2	1280.6	1264.2	1228.9	1196.1	1165.7	1141.9	1121.4	1101.7
27.5°	1335.6	1287.2	1238.8	1219.9	1200.2	1163.2	1131.2	1103.3	1078.7	1055.7	1036.0
30°	1274.1	1224.8	1178.0	1155.0	1136.1	1095.1	1065.5	1036.8	1012.2	989.2	970.3
32.5°	1210.9	1157.5	1112.3	1089.4	1069.7	1030.2	999.9	969.5	944.9	923.5	904.6
35°	1147.6	1092.6	1046.7	1023.7	1004.0	965.4	931.7	904.6	880.0	858.7	842.3
37.5°	1082.8	1028.6	981.8	960.5	940.8	902.2	867.7	844.7	817.6	797.1	781.5
40°	1017.1	962.1	917.8	895.6	875.9	837.3	803.7	780.7	755.2	734.7	719.9
42.5°	951.4	897.3	853.8	831.6	811.9	774.1	741.3	719.1	693.7	674.0	660.0
45°	885.8	833.2	788.9	767.6	748.7	711.7	679.7	657.6	632.9	614.0	600.9
47.5°	820.1	768.4	724.9	704.3	685.5	650.2	618.1	596.0	573.8	554.9	543.4
50°	755.2	705.2	662.5	641.1	623.1	589.4	559.0	536.9	514.7	497.5	486.8
52.5°	688.7	640.3	600.1	580.4	561.5	527.0	500.8	479.4	457.2	440.8	431.8
55°	626.4	577.9	538.5	519.6	501.6	469.6	440.8	422.0	401.4	385.8	376.0
57.5°	563.1	518.8	478.6	459.7	443.3	411.3	386.7	366.9	347.2	333.3	325.9
60°	499.9	458.9	421.1	403.9	386.7	355.5	331.6	313.6	296.4	283.2	277.5
62.5°	440.0	396.5	363.7	347.2	331.6	302.1	279.9	262.7	247.1	238.9	231.5
65°	381.7	340.7	309.5	293.1	278.3	252.0	229.0	216.7	202.8	193.7	188.0
67.5°	325.1	286.5	255.3	240.5	227.4	202.8	186.3	174.0	164.2	156.8	151.9
70°	270.9	234.0	204.4	192.9	181.4	159.3	147.8	134.6	128.9	120.7	117.4
72.5°	219.2	185.5	159.3	148.6	137.1	121.5	110.8	102.6	97.7	93.6	90.3
75°	170.8	141.2	118.2	109.2	101.0	88.7	82.1	74.7	71.4	69.0	66.5
77.5°	127.2	102.6	84.6	76.3	69.8	61.6	57.5	52.5	50.1	47.6	46.0
80°	88.7	68.1	55.0	50.1	46.8	40.2	37.8	34.5	32.8	31.2	29.6
82.5°	54.2	40.2	32.8	30.4	27.9	23.8	23.0	20.5	19.7	18.9	17.2
85°	27.1	20.5	17.2	15.6	14.8	13.1	13.1	12.3	11.5	11.5	10.7
87.5°	10.7	9.0	8.2	8.2	8.2	9.0	9.0	9.0	9.0	9.0	9.9
90°	8.2	9.0	9.9	9.9	10.7	11.5	12.3	13.1	13.1	14.0	13.1
92.5°	32.8	24.6	18.1	16.4	15.6	13.1	13.1	13.1	14.0	14.0	14.8
95°	82.1	73.9	63.2	59.1	55.0	47.6	41.9	36.1	31.2	29.6	25.4
97.5°	129.7	122.3	113.3	110.0	105.1	98.5	90.3	81.3	74.7	71.4	64.9
100°	181.4	173.2	164.2	160.9	156.0	148.6	144.5	135.5	128.1	124.0	112.5
102.5°	237.2	227.4	217.5	214.3	209.3	201.9	198.7	191.3	184.7	180.6	172.4
105°	295.5	285.7	274.2	270.9	265.2	261.1	254.5	247.1	241.3	238.9	231.5
107.5°	357.9	346.4	334.9	330.8	325.1	319.3	313.6	302.9	300.5	298.0	290.6
110°	424.4	412.1	399.0	394.9	388.3	383.4	376.0	368.6	362.8	360.4	353.0



TEST NUMBER: P188255

CATALOG NUMBER: MPBL-3-LD4-UNV-2STD-2STD-40

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	493.4	480.2	466.3	461.4	457.2	448.2	440.8	433.4	427.7	424.4	417.8
115°	565.6	551.7	536.1	531.1	526.2	517.2	509.0	504.0	495.0	491.7	485.2
117.5°	640.3	625.5	608.3	603.4	598.4	587.8	580.4	569.7	565.6	562.3	555.8
120°	717.5	701.1	683.8	678.1	673.2	661.7	652.6	646.9	637.0	633.7	626.4
122.5°	797.1	779.0	761.0	755.2	748.7	737.2	727.3	720.8	710.9	702.7	699.4
125°	877.6	857.9	838.2	833.2	825.8	814.3	803.7	794.6	785.6	780.7	774.1
127.5°	958.8	937.5	917.8	912.0	904.6	891.5	880.8	871.8	862.0	857.0	848.8
130°	1041.7	1019.6	998.2	991.7	984.3	971.1	954.7	949.0	938.3	932.6	925.2
132.5°	1125.5	1100.8	1078.7	1072.9	1063.9	1051.6	1034.4	1027.0	1016.3	1005.6	1001.5
135°	1208.4	1182.1	1159.1	1152.6	1145.2	1131.2	1118.1	1105.8	1093.5	1086.1	1077.9
137.5°	1290.5	1259.3	1239.6	1231.4	1224.8	1206.7	1193.6	1179.7	1169.0	1162.4	1153.4
140°	1373.4	1340.6	1318.4	1309.4	1302.8	1285.6	1270.8	1256.0	1243.7	1236.3	1227.3
142.5°	1453.8	1419.4	1395.6	1388.2	1379.1	1361.9	1347.1	1330.7	1318.4	1306.9	1301.2
145°	1532.6	1497.3	1472.7	1464.5	1456.3	1439.1	1423.5	1407.9	1394.7	1382.4	1375.9
147.5°	1609.0	1573.7	1547.4	1539.2	1531.0	1513.8	1499.8	1487.5	1469.4	1456.3	1449.7
150°	1680.4	1646.8	1619.7	1609.8	1602.4	1586.0	1571.2	1558.1	1539.2	1526.9	1519.5
152.5°	1749.4	1716.5	1689.4	1679.6	1673.0	1655.0	1640.2	1624.6	1607.4	1595.0	1586.0
155°	1814.2	1782.2	1755.9	1746.1	1739.5	1722.3	1707.5	1695.2	1675.5	1662.4	1653.3
157.5°	1873.3	1843.8	1817.5	1806.8	1801.1	1784.7	1774.8	1756.8	1740.3	1727.2	1719.8
160°	1927.5	1899.6	1874.1	1864.3	1859.4	1843.8	1834.7	1821.6	1801.9	1790.4	1782.2
162.5°	1975.1	1949.7	1925.9	1916.8	1911.9	1898.8	1890.6	1878.3	1861.0	1848.7	1840.5
165°	2017.0	1993.2	1972.7	1962.8	1960.3	1948.0	1943.1	1930.8	1915.2	1906.2	1896.3
167.5°	2051.5	2032.6	2012.9	2004.7	2001.4	1993.2	1987.4	1978.4	1963.6	1956.2	1946.4
170°	2084.3	2066.2	2048.2	2041.6	2039.2	2031.8	2027.7	2019.5	2008.0	1999.7	1992.4
172.5°	2106.5	2092.5	2076.9	2071.2	2069.5	2064.6	2063.0	2057.2	2047.4	2041.6	2035.0
175°	2123.7	2113.0	2100.7	2095.8	2095.8	2093.3	2094.2	2090.1	2082.7	2078.6	2073.6
177.5°	2136.8	2127.0	2118.8	2114.7	2114.7	2116.3	2118.0	2116.3	2112.2	2108.9	2104.0
180°	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3



TEST NUMBER: P188255

CATALOG NUMBER: MPBL-3-LD4-UNV-2STD-2STD-40

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1	1755.1
2.5°	1696.8	1692.7	1690.3	1685.3	1682.1	1677.1	1672.2	1675.5
5°	1633.6	1627.1	1624.6	1619.7	1616.4	1612.3	1608.2	1612.3
7.5°	1568.8	1559.7	1556.5	1550.7	1547.4	1541.7	1536.8	1542.5
10°	1500.6	1490.0	1485.9	1479.3	1473.5	1467.8	1463.7	1461.2
12.5°	1431.7	1421.0	1415.3	1408.7	1402.9	1397.2	1392.3	1396.4
15°	1363.5	1352.0	1346.3	1339.7	1333.2	1326.6	1320.9	1325.0
17.5°	1293.8	1279.0	1274.9	1269.1	1261.7	1255.2	1250.3	1252.7
20°	1222.3	1209.2	1204.3	1199.4	1191.1	1183.8	1179.7	1182.1
22.5°	1153.4	1138.6	1133.7	1128.8	1120.5	1114.0	1110.7	1111.5
25°	1086.1	1071.3	1066.4	1062.3	1053.2	1046.7	1042.6	1043.4
27.5°	1020.4	1005.6	999.9	996.6	988.4	981.0	976.9	977.7
30°	954.7	939.9	935.0	931.7	921.1	915.3	913.7	913.7
32.5°	894.0	875.9	871.0	868.5	859.5	853.8	852.1	852.1
35°	825.8	813.5	809.4	806.1	798.8	793.8	791.4	791.4
37.5°	764.3	753.6	749.5	746.2	739.6	735.5	735.5	733.1
40°	703.5	693.7	689.6	687.1	681.4	676.4	677.3	674.8
42.5°	645.2	634.6	631.3	628.8	623.9	619.0	619.8	618.1
45°	587.0	577.1	573.8	572.2	567.3	563.1	563.1	560.7
47.5°	530.3	522.9	517.2	515.5	511.4	508.1	507.3	504.9
50°	473.7	464.6	461.4	460.5	457.2	453.1	453.1	450.7
52.5°	419.5	412.9	408.0	406.4	402.2	399.0	399.8	398.1
55°	367.8	360.4	356.3	355.5	353.0	349.7	350.5	348.1
57.5°	316.9	311.1	310.3	307.0	303.7	302.9	302.1	299.6
60°	269.3	264.3	261.9	261.1	257.8	257.8	256.9	254.5
62.5°	224.1	220.8	220.0	217.5	215.1	212.6	214.3	212.6
65°	185.5	180.6	178.1	178.1	175.7	174.0	174.9	173.2
67.5°	148.6	144.5	142.8	142.8	140.4	138.7	139.6	138.7
70°	116.6	113.3	110.8	111.6	109.2	108.4	109.2	108.4
72.5°	88.7	86.2	85.4	84.6	82.9	82.1	82.1	82.1
75°	64.9	63.2	62.4	60.7	60.7	59.9	59.9	59.1
77.5°	44.3	43.5	42.7	42.7	41.0	40.2	40.2	40.2
80°	28.7	27.1	27.1	26.3	25.4	25.4	25.4	24.6
82.5°	16.4	15.6	15.6	15.6	14.8	14.8	14.8	14.0
85°	10.7	10.7	10.7	9.9	9.9	9.9	9.9	9.9
87.5°	9.9	9.9	9.9	10.7	11.5	11.5	11.5	11.5
90°	13.1	12.3	12.3	13.1	14.0	14.0	14.8	15.6
92.5°	14.8	14.8	14.8	15.6	15.6	16.4	16.4	16.4
95°	23.0	22.2	22.2	20.5	21.3	20.5	20.5	20.5
97.5°	62.4	57.5	55.0	54.2	52.5	50.9	50.9	50.9
100°	111.6	105.1	101.0	100.2	97.7	95.2	95.2	94.4
102.5°	166.6	161.7	157.6	156.8	152.7	150.2	149.4	148.6
105°	229.0	222.5	220.8	217.5	213.4	210.2	211.0	209.3
107.5°	285.7	283.2	279.1	279.1	275.0	272.5	273.4	272.5
110°	348.1	345.6	341.5	341.5	338.2	336.6	337.4	335.8



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**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	412.9	410.5	406.4	405.5	403.1	400.6	401.4	400.6
115°	481.1	477.8	478.6	473.7	471.2	472.8	469.6	468.7
117.5°	550.0	547.6	544.3	543.4	541.0	540.2	540.2	540.2
120°	621.4	619.0	615.7	614.9	612.4	610.8	612.4	611.6
122.5°	694.5	691.2	687.9	687.1	684.6	683.0	684.6	684.6
125°	768.4	764.3	761.8	760.2	758.5	757.7	757.7	757.7
127.5°	843.1	839.0	836.5	834.1	832.4	831.6	832.4	832.4
130°	918.6	914.5	911.2	908.8	907.1	906.3	907.1	907.1
132.5°	994.9	988.4	985.9	983.5	981.8	981.0	981.8	982.6
135°	1069.7	1063.1	1059.8	1057.3	1055.7	1054.9	1054.1	1056.5
137.5°	1144.4	1137.8	1137.0	1131.2	1129.6	1127.9	1127.1	1128.8
140°	1218.2	1211.7	1210.0	1205.1	1202.6	1201.0	1200.2	1201.0
142.5°	1292.1	1283.1	1282.3	1276.5	1274.1	1271.6	1270.8	1272.4
145°	1366.0	1356.2	1354.5	1347.9	1344.7	1342.2	1340.6	1342.2
147.5°	1439.9	1428.4	1425.1	1419.4	1415.3	1412.0	1409.5	1410.3
150°	1509.7	1497.3	1494.1	1488.3	1483.4	1479.3	1478.5	1477.6
152.5°	1576.2	1563.8	1560.6	1555.6	1549.9	1546.6	1545.8	1544.1
155°	1643.5	1632.0	1627.9	1621.3	1616.4	1612.3	1611.5	1609.8
157.5°	1709.1	1697.7	1692.7	1687.8	1681.2	1677.1	1675.5	1673.8
160°	1771.5	1760.9	1755.9	1751.0	1744.4	1739.5	1738.7	1734.6
162.5°	1829.8	1819.1	1814.2	1808.5	1801.9	1797.0	1796.2	1792.9
165°	1885.6	1874.1	1871.7	1864.3	1857.7	1852.8	1851.2	1847.1
167.5°	1937.4	1927.5	1922.6	1918.5	1912.7	1908.6	1907.0	1902.9
170°	1985.0	1975.1	1971.8	1967.7	1962.0	1957.9	1957.1	1953.8
172.5°	2027.7	2018.6	2014.5	2009.6	2003.0	1998.1	1995.6	1992.4
175°	2067.9	2058.9	2054.8	2049.8	2040.0	2033.4	2029.3	2025.2
177.5°	2100.7	2093.3	2090.9	2086.8	2080.2	2076.1	2072.8	2069.5
180°	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3	2125.3

(END OF REPORT)