

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: LUMARK

Report Number: P196388

Luminaire Tested: **NAV-AF-02-D-UNV-T4W-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196388
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24127)
Test Lab: INNOVATION CENTER P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: LUMARK
Catalog Number: NAV-AF-02-D-UNV-T4W-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13507 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short - Semi-Cutoff
BUG Rating: B2 - U0 - G3

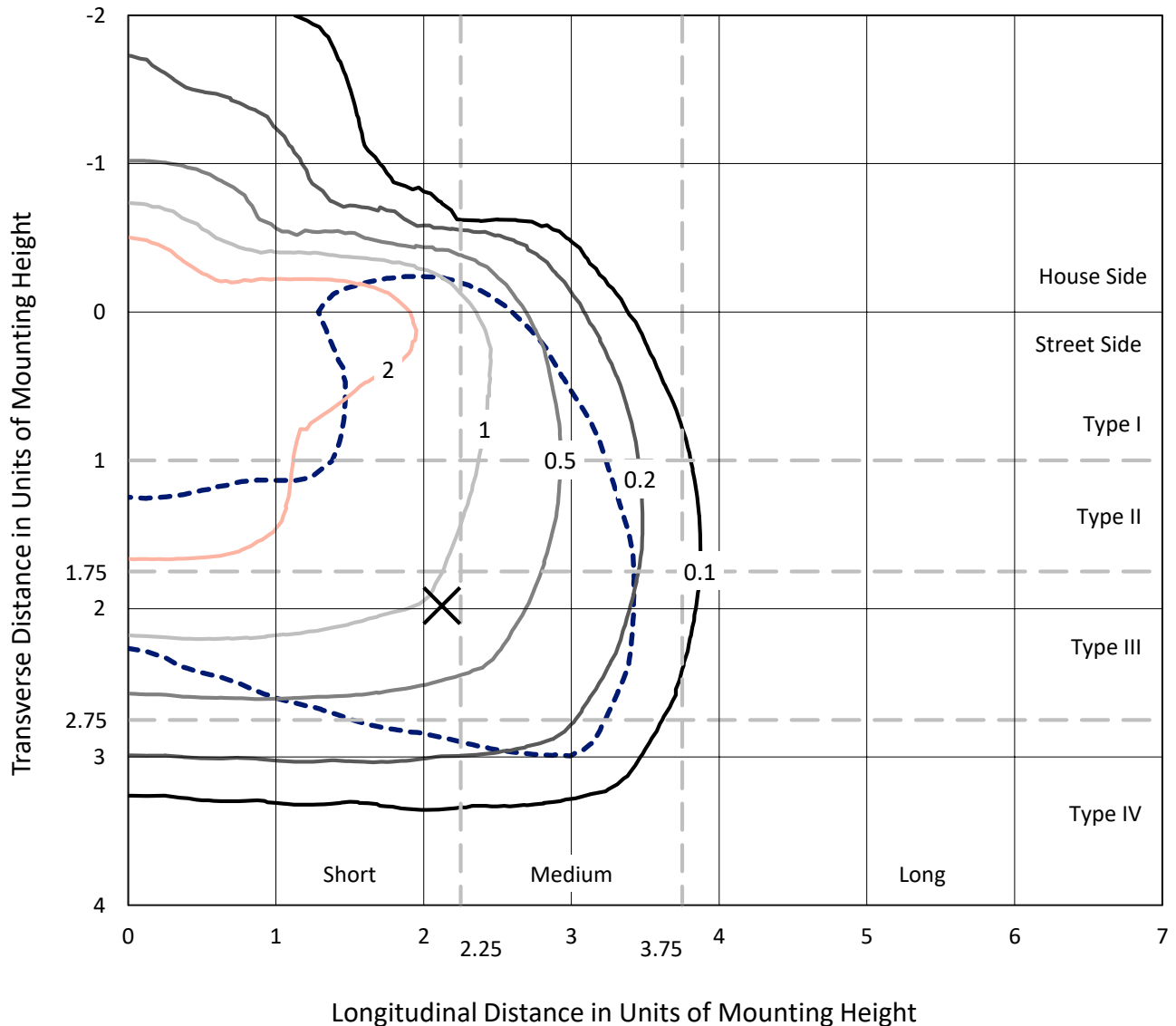
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

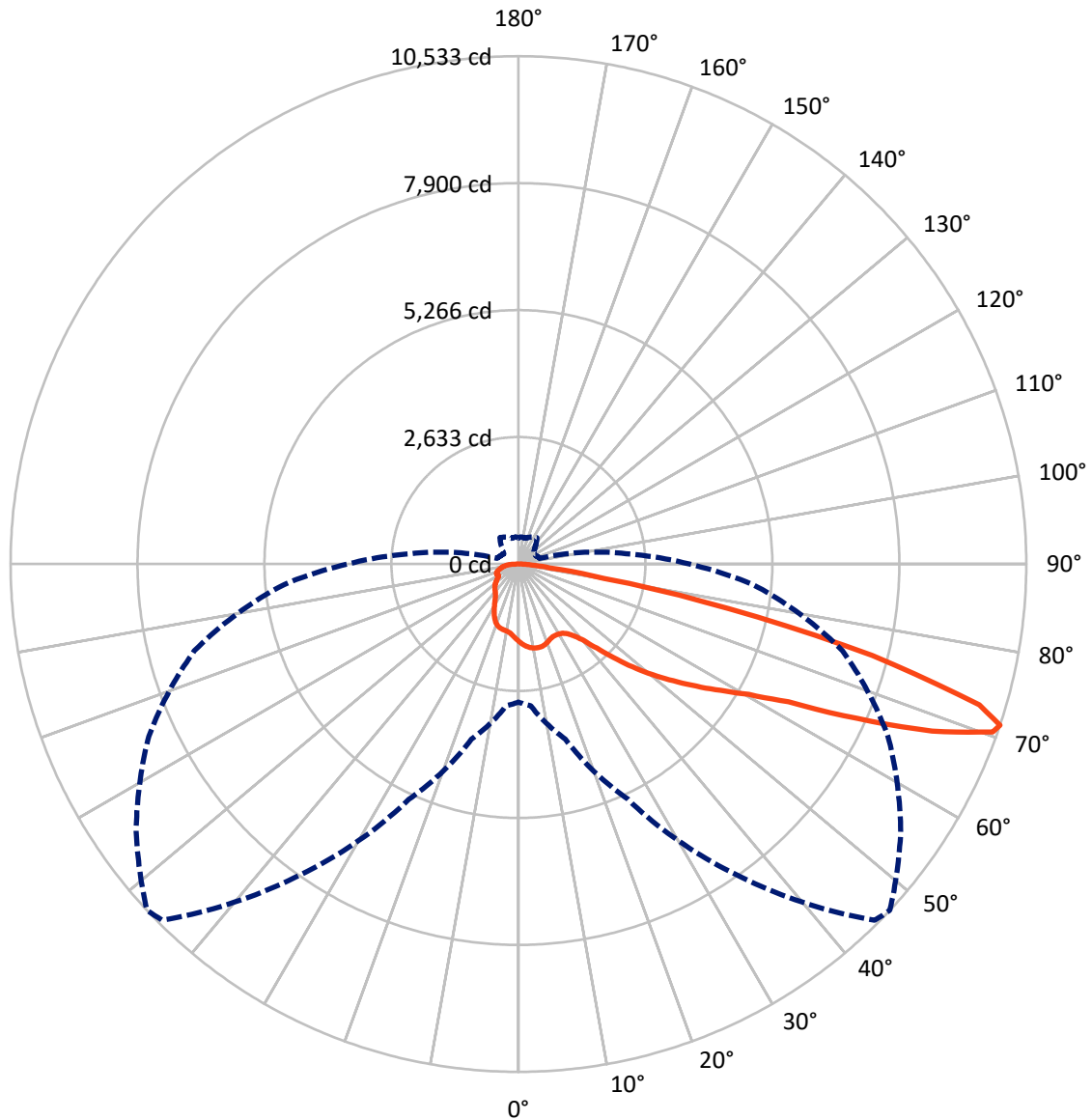
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.6 fc
 Type IV - Short - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 47-Deg Lateral - - - Horizontal Cone Through 71-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2894.7	0.0	2894.7
	% Fixture	21.4	0.0	21.4
Street Side	Lumens	10612.3	0.0	10612.3
	% Fixture	78.6	0.0	78.6
Total	Lumens	13507.0	0.0	13507.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.4	1.1
10°-20°	448.7	3.3
20°-30°	666.7	4.9
30°-40°	957.3	7.1
40°-50°	1697.3	12.6
50°-60°	2904.3	21.5
60°-70°	4123.1	30.5
70°-80°	2258.2	16.7
80°-90°	298.1	2.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	13507.0	100.0
0°-180°	13507.0	100.0



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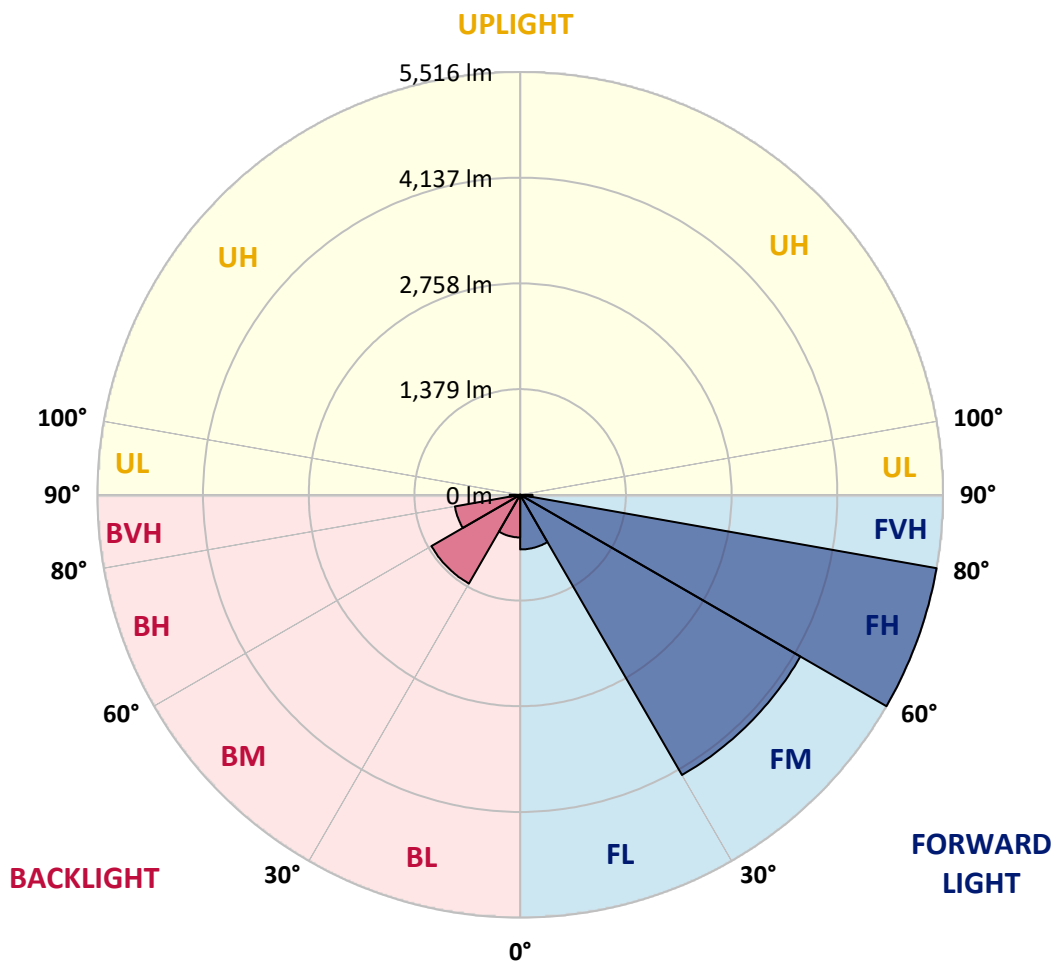
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	712.8	5.3			
FM	(30°-60°)	4221.4	31.3			
FH	(60°-80°)	5516.4	40.8			G3/7500
FVH	(80°-90°)	161.7	1.2			G2/225
BL	(0°-30°)	555.9	4.1	B2/1000		
BM	(30°-60°)	1337.5	9.9	B2/2500		
BH	(60°-80°)	864.9	6.4	B2/1000		G2/1000
BVH	(80°-90°)	136.4	1.0			G2/225
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	47°	55°	65°	75°	85°
0°	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2
2.5°	1704.2	1700.8	1702.5	1696.4	1681.5	1665.8	1665.8	1649.1	1631.6	1614.1	1594.9
5°	1810.2	1804.9	1800.5	1781.3	1752.4	1720.0	1714.8	1681.5	1645.6	1609.7	1574.7
7.5°	1898.6	1893.3	1880.2	1845.2	1803.2	1755.0	1748.9	1705.2	1657.9	1608.0	1559.0
10°	1961.6	1958.1	1932.7	1888.1	1839.1	1782.2	1771.6	1727.0	1671.0	1608.8	1546.7
12.5°	1996.6	1991.4	1960.7	1908.2	1850.4	1792.6	1782.2	1739.2	1675.4	1607.1	1534.4
15°	1982.6	1980.0	1951.1	1897.7	1839.9	1790.1	1781.3	1737.5	1672.7	1600.9	1523.1
17.5°	1923.0	1929.2	1906.5	1853.9	1806.6	1771.6	1762.0	1720.9	1659.6	1586.1	1505.6
20°	1840.8	1847.8	1836.4	1783.0	1755.9	1733.2	1727.9	1694.6	1637.7	1564.2	1484.5
22.5°	1753.2	1759.4	1760.3	1710.4	1701.6	1692.9	1688.5	1664.9	1618.5	1551.1	1470.5
25°	1692.9	1699.8	1701.6	1657.9	1663.1	1665.8	1664.9	1648.2	1614.9	1551.1	1472.3
27.5°	1677.1	1680.6	1678.9	1638.6	1648.2	1663.1	1664.0	1660.5	1628.9	1568.6	1496.8
30°	1731.3	1733.2	1711.3	1650.8	1660.5	1679.8	1680.6	1678.9	1658.7	1614.1	1551.9
32.5°	1966.0	1964.3	1889.0	1733.2	1699.8	1706.9	1709.5	1725.2	1727.0	1689.4	1631.6
35°	2323.1	2322.2	2234.7	1968.6	1812.0	1775.1	1778.6	1803.2	1825.0	1799.7	1766.4
37.5°	2716.1	2718.7	2665.4	2304.7	2053.5	1900.3	1896.9	1915.2	1954.6	1963.3	1967.7
40°	3152.0	3165.1	3162.6	2690.8	2392.3	2113.9	2078.8	2057.9	2134.1	2182.2	2244.4
42.5°	3650.1	3646.6	3648.4	3114.4	2779.2	2450.1	2385.2	2287.2	2375.6	2458.8	2595.3
45°	4078.1	4092.1	4102.6	3565.2	3212.5	2834.3	2768.6	2590.1	2669.7	2794.0	3002.4
47.5°	4508.8	4484.3	4503.5	4066.7	3694.7	3272.8	3187.9	2947.2	3021.6	3196.7	3513.5
50°	5010.3	4999.0	4911.4	4721.4	4277.7	3717.5	3606.3	3320.1	3428.6	3662.4	4144.7
52.5°	5460.2	5398.9	5330.7	5236.2	4851.0	4167.4	4026.4	3707.9	3907.5	4197.2	4928.1
55°	5624.8	5583.7	5665.9	5788.5	5457.6	4626.1	4468.6	4160.4	4447.5	4809.0	5849.7
57.5°	5799.9	5813.8	5999.4	6247.2	6031.8	5115.4	4944.6	4696.1	5040.1	5493.6	6880.1
60°	5887.4	5943.4	6313.7	6778.5	6578.1	5651.9	5488.2	5311.5	5697.4	6249.8	7907.6
62.5°	5902.3	5977.6	6501.9	6965.0	7330.0	6473.8	6284.8	6093.1	6518.5	7085.7	8651.7
65°	5629.2	5744.7	6485.2	7194.3	8015.3	7847.3	7727.4	7393.0	7617.9	7821.9	8778.6
67.5°	4826.5	4952.5	5843.6	7099.7	8565.0	9272.2	9249.5	8755.8	8467.0	8106.4	7837.6
70°	3542.4	3644.0	4500.1	6069.5	8325.2	10390.9	10431.2	9639.1	8704.2	7502.4	5827.9
71°	2864.9	2952.4	3759.5	5388.5	7857.8	10448.7	10532.7	9678.4	8457.3	6957.1	4879.1
72.5°	1783.0	1832.0	2496.4	4066.7	6766.2	9853.5	9995.3	9174.2	7680.1	5880.4	3448.8
75°	673.1	692.3	926.1	1793.5	4038.7	7402.6	7574.1	6933.5	5395.5	3356.8	1443.4
77.5°	361.5	371.1	459.5	745.7	1618.5	4243.5	4464.2	3954.7	2588.4	1174.7	589.9
80°	242.4	248.6	317.7	442.0	744.0	1615.9	1799.7	1587.8	968.9	670.5	420.1
82.5°	156.7	160.2	216.3	290.6	480.6	568.0	648.7	677.5	604.9	480.6	253.8
85°	103.3	105.9	142.7	185.6	297.6	280.1	287.1	375.5	412.2	316.9	129.5
87.5°	59.5	61.3	85.8	95.4	133.9	105.1	113.8	178.6	245.1	206.5	74.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2	1606.2
2.5°	1586.1	1579.1	1563.3	1553.7	1549.4	1547.5	1545.8	1549.4	1549.4	1547.5	1544.0
5°	1557.2	1544.0	1517.9	1499.4	1489.8	1487.2	1490.6	1495.0	1497.7	1497.7	1495.0
7.5°	1536.2	1516.9	1481.9	1456.6	1441.6	1437.2	1446.9	1462.6	1473.2	1478.4	1479.3
10°	1518.7	1492.4	1453.9	1427.6	1415.4	1413.6	1425.9	1446.0	1467.9	1477.6	1479.3
12.5°	1502.9	1473.2	1431.1	1406.7	1397.9	1402.3	1418.9	1437.2	1462.6	1476.6	1477.6
15°	1488.1	1457.4	1412.8	1387.4	1385.6	1392.6	1408.4	1423.2	1442.6	1460.1	1460.1
17.5°	1470.5	1437.2	1390.9	1367.3	1367.3	1373.4	1383.8	1391.7	1404.0	1420.7	1419.8
20°	1449.5	1415.4	1368.1	1343.6	1338.3	1334.8	1334.8	1336.6	1347.1	1362.0	1364.6
22.5°	1433.8	1398.8	1348.9	1319.1	1295.5	1272.8	1263.0	1259.6	1269.2	1283.2	1286.8
25°	1433.8	1398.8	1342.7	1292.8	1235.1	1191.3	1172.9	1167.7	1177.3	1190.4	1195.7
27.5°	1457.4	1422.4	1356.7	1269.2	1163.3	1093.2	1071.4	1067.0	1075.7	1086.3	1091.5
30°	1512.5	1478.4	1397.0	1242.1	1083.6	991.8	967.2	962.9	967.2	971.6	977.7
32.5°	1604.5	1575.5	1462.6	1217.6	1003.1	899.8	870.0	863.1	864.8	865.7	870.9
35°	1754.2	1741.1	1550.2	1188.7	927.0	824.6	793.9	779.9	779.1	783.4	789.5
37.5°	1983.5	1991.4	1663.1	1146.6	864.0	771.2	740.5	726.5	719.5	728.2	735.3
40°	2307.4	2325.7	1793.5	1089.7	812.3	739.7	707.3	694.2	684.5	681.9	685.4
42.5°	2728.4	2723.1	1926.6	1017.1	756.3	718.6	684.5	670.5	654.8	634.6	630.2
45°	3227.3	3152.0	2037.7	927.8	692.3	698.5	663.5	644.3	619.7	589.9	586.5
47.5°	3816.4	3609.0	2106.1	832.5	632.9	672.3	639.9	610.1	574.2	555.0	552.3
50°	4526.3	4143.8	2154.1	735.3	579.5	638.9	606.6	567.2	532.2	526.9	526.1
52.5°	5366.6	4774.8	2213.7	647.7	537.5	596.1	573.4	533.1	505.0	507.7	507.7
55°	6260.3	5427.9	2215.4	578.6	500.7	546.2	548.8	516.5	494.6	503.3	506.0
57.5°	7075.2	5998.6	2041.3	529.6	465.6	506.8	540.9	522.5	506.0	536.5	539.2
60°	7786.0	6437.9	1666.6	489.3	436.8	491.9	558.4	560.2	556.7	639.9	646.0
62.5°	8045.9	6442.3	1183.5	455.2	421.0	500.7	595.3	597.8	597.8	674.8	686.3
65°	7681.8	5905.8	787.8	435.1	410.5	520.0	625.0	613.6	586.5	639.9	627.6
67.5°	6398.6	4597.1	575.9	421.9	395.7	520.8	651.2	622.4	575.9	621.4	600.5
70°	4397.6	2925.3	482.3	409.7	378.2	498.1	665.2	619.7	560.2	579.5	551.5
71°	3539.8	2334.5	457.8	405.3	371.1	484.9	667.0	616.2	552.3	564.6	539.2
72.5°	2331.8	1438.2	428.0	395.7	360.6	462.2	662.7	608.3	541.9	542.7	526.1
75°	919.9	596.1	385.1	373.8	330.8	425.4	643.3	591.7	521.7	504.2	497.2
77.5°	464.8	389.5	338.7	343.1	295.8	387.8	616.2	564.6	493.7	470.0	464.8
80°	339.6	295.8	289.7	297.6	256.5	351.0	582.1	527.8	457.8	482.3	471.8
82.5°	206.5	180.3	226.7	245.9	214.4	313.3	541.9	484.9	412.2	379.9	367.6
85°	98.0	105.9	163.7	181.2	158.5	250.3	495.4	437.6	359.8	310.8	316.0
87.5°	48.2	58.6	93.7	108.5	104.1	183.8	373.8	339.6	283.6	233.7	228.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)