

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: P196190

Luminaire Tested: **NAV-AF-02-D-UNV-SL4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196190
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24284)
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-SL4
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11886.7 lumens
Efficiency: N/A
Efficacy: 105.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U0 - G3

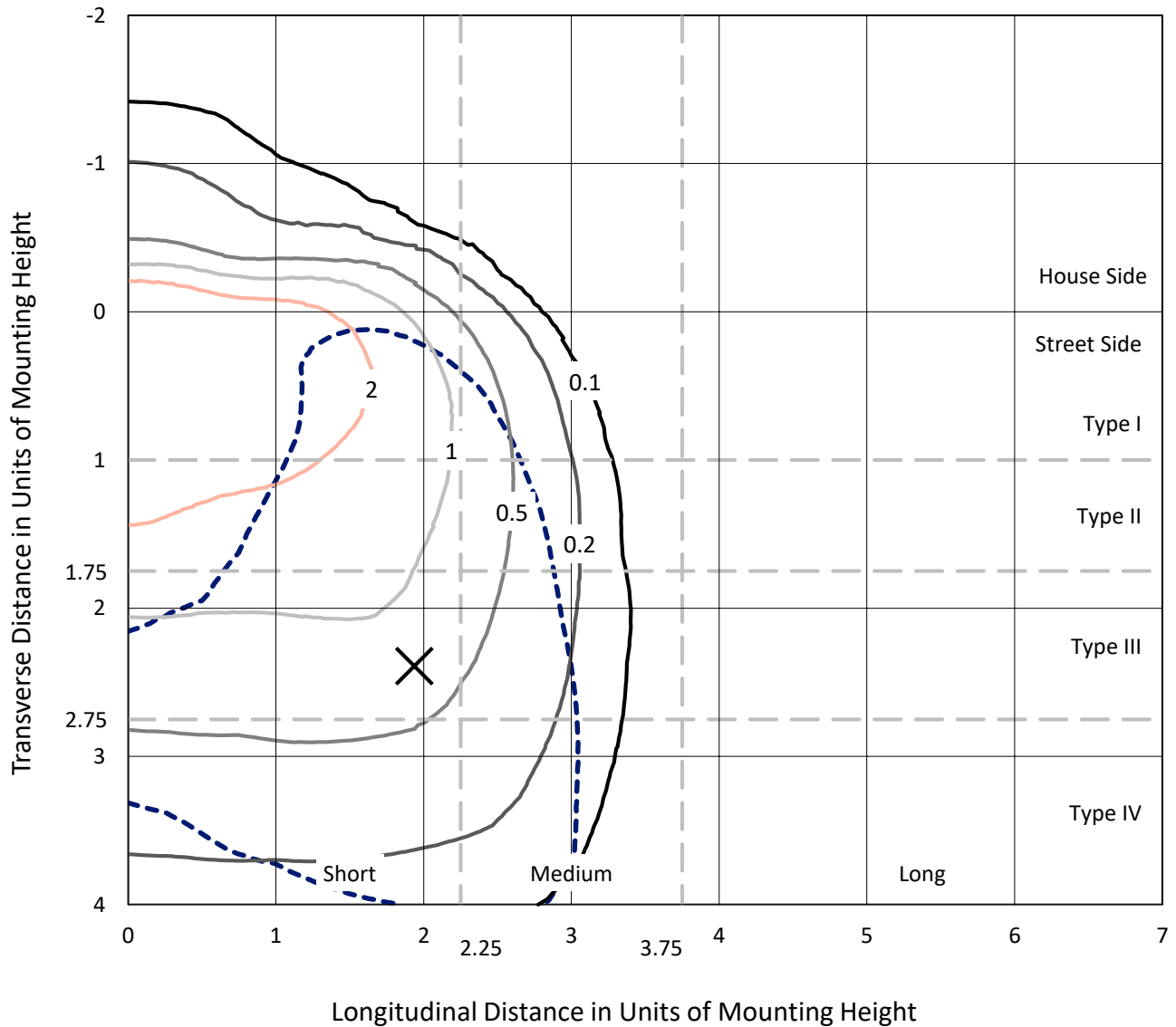
Input Watts (W): 113
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

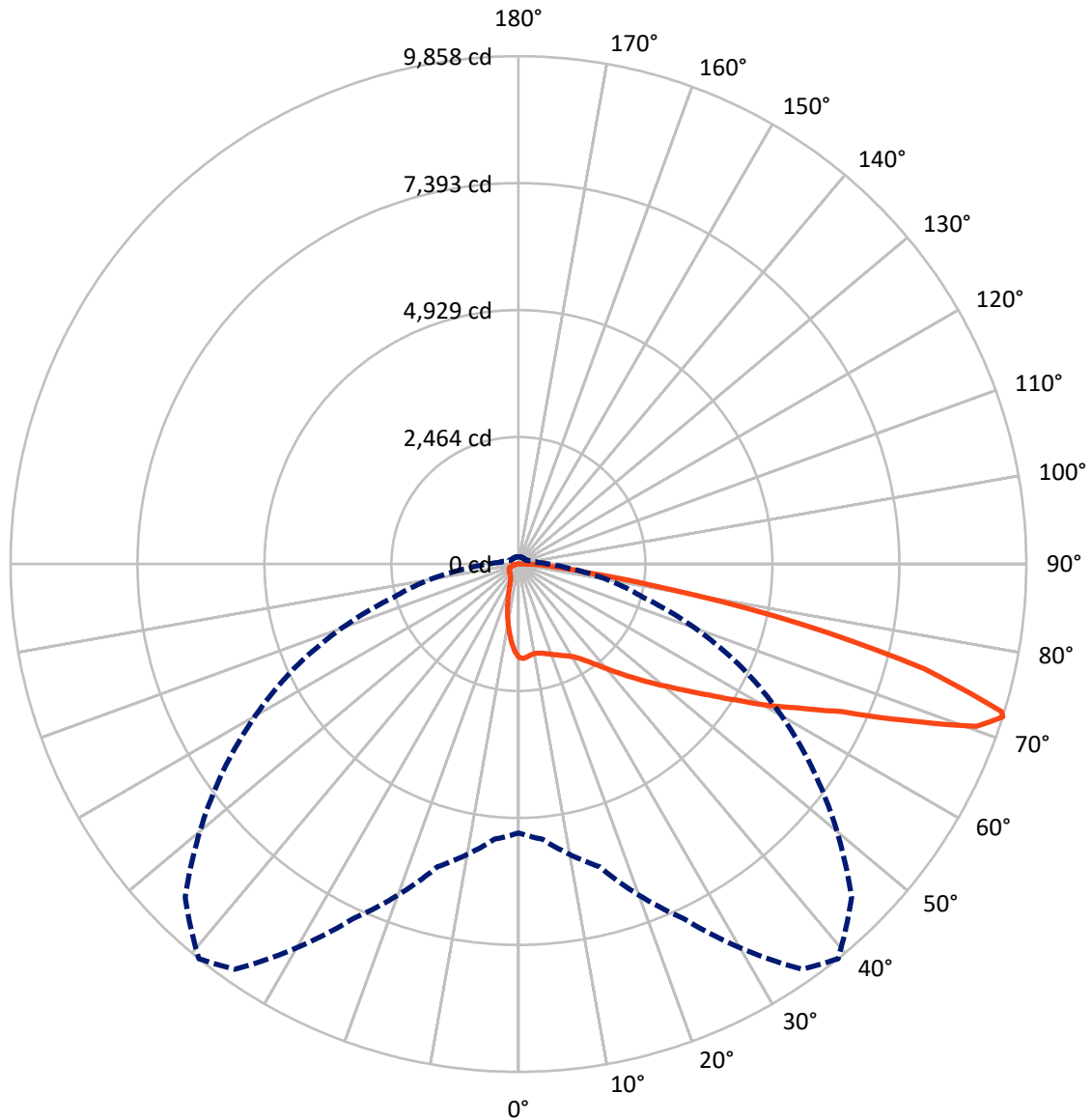
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4.5 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 39-Deg Lateral - - - Horizontal Cone Through 72-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1363.0	0.0	1363.0
	% Fixture	11.5	0.0	11.5
Street Side	Lumens	10523.7	0.0	10523.7
	% Fixture	88.5	0.0	88.5
Total	Lumens	11886.7	0.0	11886.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.0	1.3
10°-20°	392.0	3.3
20°-30°	610.9	5.1
30°-40°	940.6	7.9
40°-50°	1533.3	12.9
50°-60°	2382.6	20.0
60°-70°	3189.1	26.8
70°-80°	2293.4	19.3
80°-90°	388.8	3.3
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°	11886.7	100.0
0°-180°	11886.7	100.0



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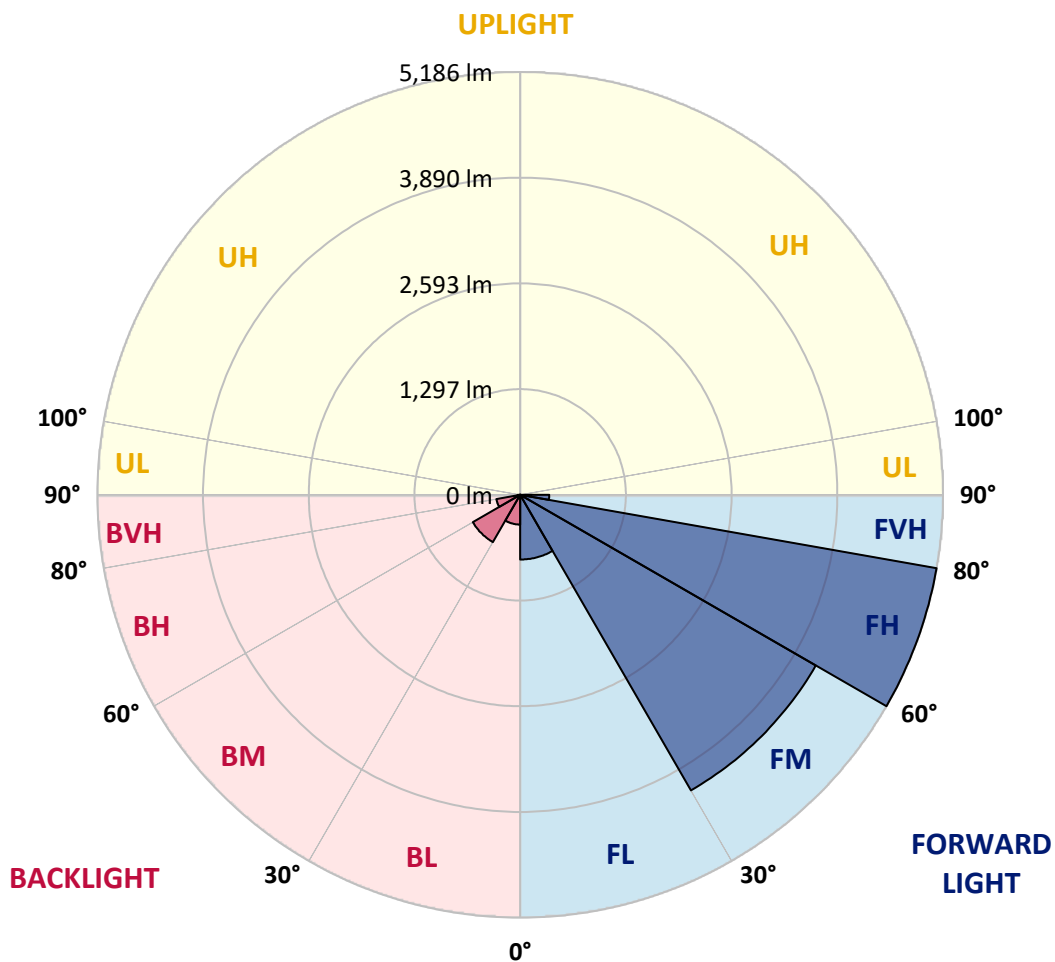
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	794.0	6.7			
FM	(30°-60°)	4186.7	35.2			
FH	(60°-80°)	5186.4	43.6			G3/7500
FVH	(80°-90°)	356.6	3.0			G3/500
BL	(0°-30°)	364.9	3.1	B1/500		
BM	(30°-60°)	669.8	5.6	B1/1000		
BH	(60°-80°)	296.1	2.5	B1/500		G1/500
BVH	(80°-90°)	32.1	0.3			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	39°	45°	55°	65°	75°	85°
0°	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3
2.5°	1854.4	1855.2	1852.8	1845.6	1839.3	1836.1	1830.5	1820.9	1808.2	1799.4	1792.2
5°	1836.8	1839.3	1837.6	1825.7	1814.5	1808.2	1799.4	1785.8	1769.0	1761.8	1745.1
7.5°	1823.3	1824.8	1820.1	1806.5	1784.9	1777.0	1761.0	1743.5	1728.4	1717.9	1698.0
10°	1813.7	1815.3	1811.3	1797.7	1773.8	1764.3	1745.1	1725.9	1706.0	1693.2	1670.9
12.5°	1800.2	1803.4	1803.4	1796.9	1781.0	1774.6	1755.5	1734.7	1716.4	1702.8	1674.9
15°	1797.7	1801.7	1808.9	1808.2	1803.4	1798.6	1783.4	1762.6	1746.7	1730.7	1696.5
17.5°	1817.7	1826.5	1840.8	1845.6	1842.4	1832.1	1814.5	1795.4	1777.8	1762.6	1720.4
20°	1868.0	1872.7	1894.3	1903.9	1888.0	1872.7	1849.6	1824.8	1808.9	1796.9	1742.7
22.5°	1943.8	1950.2	1967.7	1968.5	1935.0	1916.6	1887.1	1856.8	1841.6	1836.8	1773.0
25°	2065.0	2063.5	2068.3	2048.4	1987.7	1966.1	1930.2	1895.1	1884.7	1894.3	1817.7
27.5°	2210.3	2206.3	2191.2	2139.3	2047.5	2019.6	1976.4	1945.3	1945.3	1967.7	1878.3
30°	2377.8	2373.9	2324.3	2237.4	2118.5	2086.6	2041.1	2008.5	2025.1	2068.3	1960.5
32.5°	2555.0	2540.6	2471.2	2354.7	2219.9	2184.7	2140.8	2107.4	2139.3	2212.6	2078.6
35°	2721.8	2713.8	2628.4	2490.4	2350.7	2321.2	2290.9	2249.4	2300.4	2414.6	2245.4
37.5°	2894.1	2887.8	2783.2	2636.3	2510.3	2490.4	2464.8	2436.2	2518.3	2668.3	2471.2
40°	3086.4	3073.7	2942.0	2795.2	2696.2	2686.7	2673.1	2665.1	2797.6	3021.0	2756.9
42.5°	3304.2	3279.5	3109.6	2969.9	2898.9	2906.9	2899.8	2931.7	3134.3	3427.9	3096.8
45°	3553.2	3503.7	3276.3	3155.8	3123.2	3155.1	3170.2	3251.6	3532.5	3898.0	3476.6
47.5°	3786.2	3722.4	3459.1	3357.7	3376.0	3431.2	3474.2	3617.9	3968.9	4362.4	3864.4
50°	4000.9	3929.1	3654.6	3566.8	3656.1	3734.4	3823.7	4026.4	4433.4	4840.3	4220.3
52.5°	4159.6	4107.8	3850.1	3795.0	3977.7	4081.5	4224.3	4480.4	4902.5	5295.9	4537.9
55°	4282.6	4254.7	4040.8	4056.7	4341.6	4490.0	4663.1	4957.6	5398.8	5704.5	4793.2
57.5°	4424.6	4403.8	4258.6	4372.7	4793.2	4979.9	5184.2	5511.4	5871.2	6064.4	4993.5
60°	4574.5	4574.5	4501.2	4753.3	5358.1	5572.0	5775.5	6030.0	6342.0	6388.3	5074.9
62.5°	4687.9	4717.4	4743.7	5158.6	5894.3	6160.1	6383.5	6627.7	6829.5	6547.9	4883.4
65°	4852.3	4915.3	5063.7	5627.0	6558.2	6906.1	7207.8	7412.8	7224.5	6421.1	4258.6
67.5°	5134.7	5228.1	5544.1	6324.5	7574.8	8095.8	8388.7	8034.5	7147.2	5622.2	3262.0
70°	5389.3	5521.0	6061.2	7209.3	8896.2	9437.2	9302.4	7890.0	6224.8	4121.4	2006.8
72°	5220.1	5363.7	6085.1	7594.8	9602.4	9857.8	9146.8	6992.4	4810.0	2515.1	989.4
72.5°	5109.2	5258.4	6007.7	7585.2	9621.6	9804.3	8930.6	6635.7	4366.4	2200.7	800.4
75°	4268.2	4395.8	5165.9	6722.6	8478.9	8143.8	6969.2	4294.6	2006.8	711.0	411.7
77.5°	2787.2	2884.5	3562.0	4657.6	5939.0	5616.7	4241.9	2010.8	752.5	431.7	309.6
80°	1400.4	1469.8	1906.3	2448.8	3205.3	2949.2	1958.1	972.7	503.5	312.0	243.4
82.5°	974.3	1038.1	1312.7	1250.4	1339.8	1296.7	920.9	811.5	376.7	197.1	127.7
85°	817.1	883.3	1086.0	891.3	729.4	664.7	659.9	766.8	249.0	97.4	107.7
87.5°	712.6	813.1	896.1	651.1	500.3	441.3	485.9	703.0	79.0	53.5	32.7
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°	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3	1815.3
2.5°	1780.2	1777.8	1765.8	1747.5	1733.9	1725.1	1708.4	1707.6	1709.1	1694.8	1700.5
5°	1729.9	1720.4	1689.2	1647.0	1612.7	1579.9	1544.0	1532.1	1521.6	1500.2	1502.5
7.5°	1677.2	1660.6	1606.2	1536.8	1470.6	1409.9	1350.1	1320.6	1298.2	1270.3	1270.3
10°	1646.1	1619.8	1536.8	1435.5	1330.1	1241.6	1152.3	1098.8	1059.7	1023.8	1021.3
12.5°	1644.6	1604.7	1488.9	1349.3	1204.9	1080.4	958.3	876.2	817.8	775.6	771.6
15°	1657.3	1601.4	1449.0	1268.8	1086.8	924.8	774.0	669.5	595.3	548.2	543.4
17.5°	1668.5	1597.4	1405.9	1184.2	971.9	774.8	607.2	498.7	428.5	390.2	386.2
20°	1678.9	1588.7	1350.9	1094.8	845.1	634.3	474.8	387.0	340.7	319.2	316.8
22.5°	1694.0	1580.8	1293.4	994.2	720.6	516.3	391.8	328.8	304.0	293.7	292.1
25°	1718.8	1581.5	1237.6	891.3	606.4	430.0	339.1	300.0	286.4	279.3	279.3
27.5°	1754.7	1591.1	1182.5	786.8	509.8	371.0	308.0	284.9	276.1	270.5	268.9
30°	1807.3	1608.7	1124.3	687.8	433.3	330.3	289.7	275.3	268.1	263.3	262.5
32.5°	1884.0	1639.8	1062.8	597.6	375.0	301.7	276.1	267.3	261.8	257.8	257.0
35°	1998.0	1694.8	1003.0	521.1	333.6	280.9	264.9	257.8	254.5	253.0	252.2
37.5°	2165.6	1783.4	946.3	461.2	306.4	267.3	253.8	249.8	248.2	248.2	248.2
40°	2376.2	1899.9	895.3	418.9	291.2	257.0	245.8	242.5	242.5	243.4	243.4
42.5°	2632.4	2045.9	851.4	390.2	282.4	249.8	240.2	238.6	237.8	237.8	238.6
45°	2930.0	2218.3	824.3	367.9	276.1	245.8	236.2	235.4	232.2	230.6	230.6
47.5°	3229.3	2402.6	822.7	355.1	268.1	241.0	232.2	232.2	225.9	222.6	223.4
50°	3508.5	2567.8	840.3	351.9	263.3	233.8	228.2	229.0	220.2	216.3	215.4
52.5°	3733.6	2693.8	861.7	355.9	263.3	227.4	221.1	225.0	215.4	210.6	209.8
55°	3907.5	2781.6	869.7	364.7	266.5	221.9	214.6	221.1	213.8	207.5	207.5
57.5°	4032.0	2809.5	835.4	368.7	271.3	221.1	208.3	220.2	216.3	208.3	208.3
60°	3986.5	2647.6	707.8	353.5	270.5	219.4	203.5	221.9	224.2	215.4	215.4
62.5°	3631.4	2215.1	568.1	319.2	257.0	213.8	197.8	220.2	229.9	226.6	225.0
65°	2956.3	1624.7	440.5	278.4	233.8	201.8	185.9	205.8	217.1	220.2	221.1
67.5°	2083.4	1028.6	342.3	237.0	205.1	184.3	172.4	181.9	185.9	187.5	190.7
70°	1139.5	557.0	272.1	199.5	175.5	166.7	157.9	158.8	157.2	155.6	157.2
72°	572.1	363.9	229.9	173.2	155.6	150.0	146.0	143.6	143.6	141.3	142.0
72.5°	492.3	338.3	221.9	166.7	150.8	146.0	142.8	140.5	139.6	138.0	138.8
75°	328.0	268.1	185.2	139.6	128.5	125.3	126.8	124.5	125.3	123.7	124.5
77.5°	264.9	230.6	157.2	118.0	110.1	105.4	108.5	109.4	110.9	109.4	108.5
80°	221.9	196.3	131.7	97.4	91.8	87.8	89.4	94.9	95.7	90.9	90.1
82.5°	143.6	157.9	103.7	75.8	70.2	68.6	72.6	78.2	79.8	73.4	71.8
85°	120.5	126.8	75.0	51.9	46.2	44.7	52.7	58.2	62.2	55.9	54.2
87.5°	33.6	62.2	36.7	24.8	20.8	20.8	25.6	30.3	35.9	36.7	36.7
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)