

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: P196310

Luminaire Tested: **NAV-AF-02-D-UNV-T3**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196310
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (p24135)
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-T3
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12464.6 lumens
Efficiency: N/A
Efficacy: 110.3 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type III - Short - Semi-Cutoff
BUG Rating: B2 - U0 - G2

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

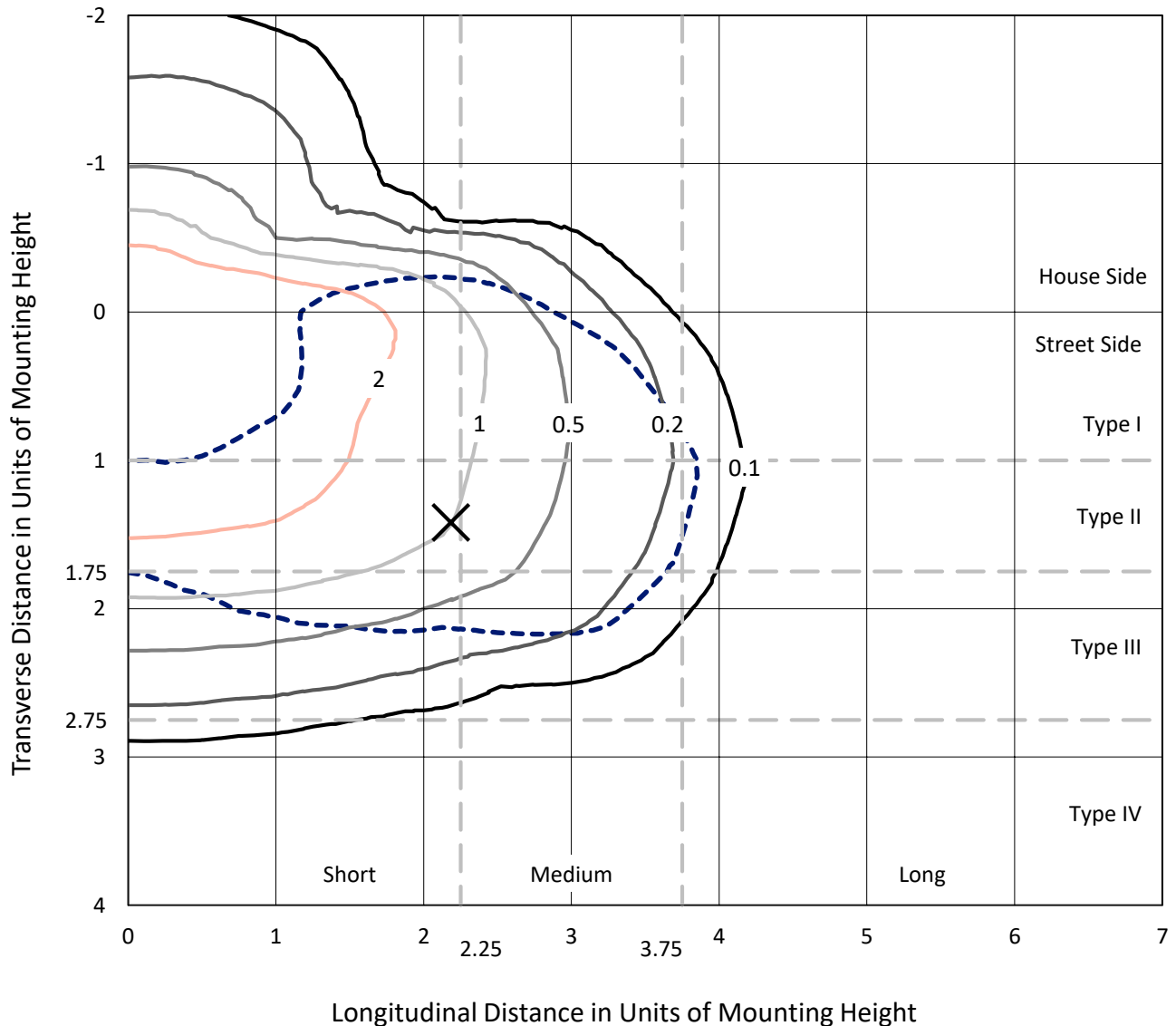


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Iso-Footcandle Lines of Horizontal Illumination

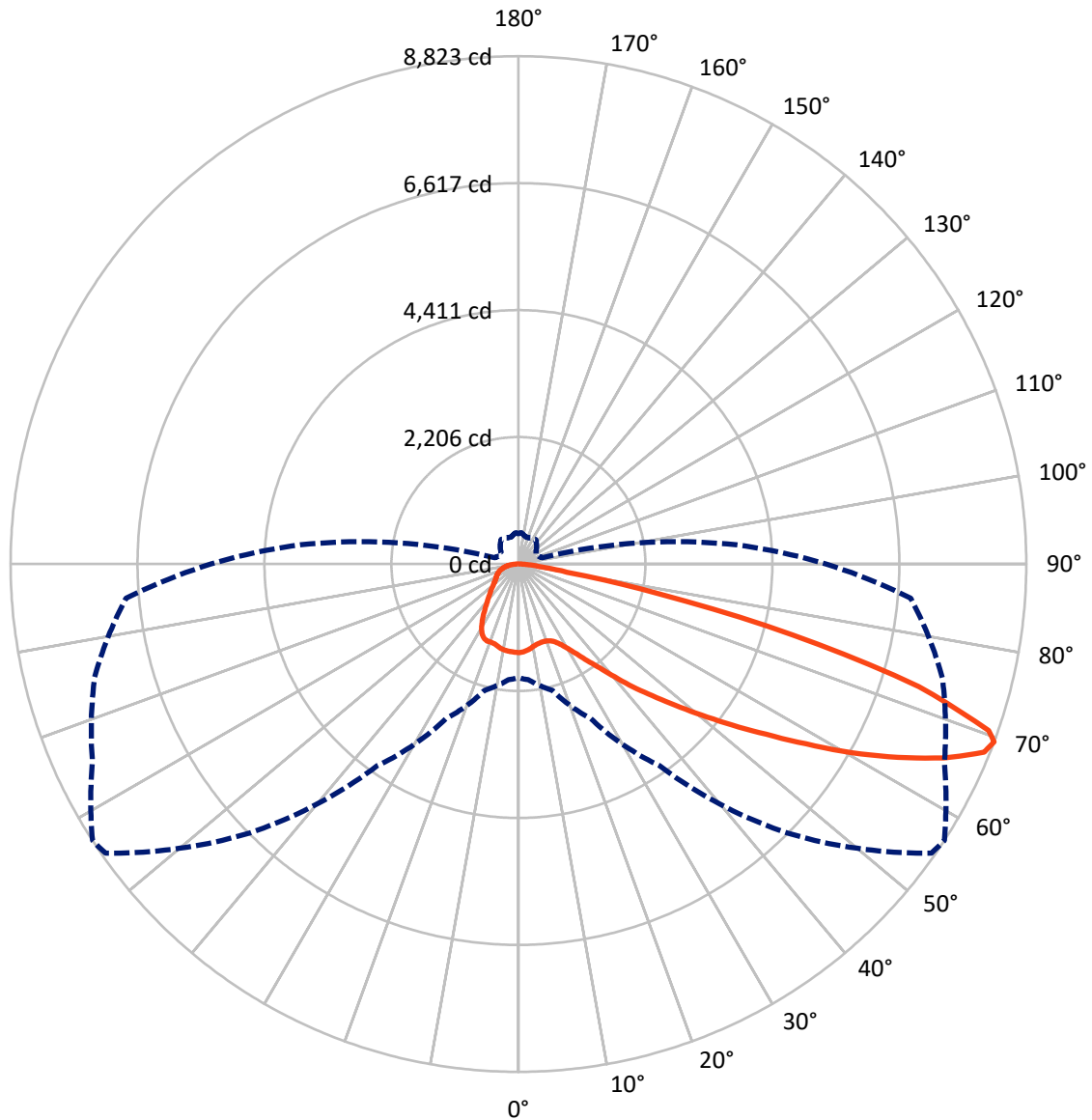
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3.9 fc
 Type III - Short - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 57-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2750.5	0.0	2750.5
	% Fixture	22.1	0.0	22.1
Street Side	Lumens	9714.1	0.0	9714.1
	% Fixture	77.9	0.0	77.9
Total	Lumens	12464.6	0.0	12464.6
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.2	1.2
10°-20°	410.0	3.3
20°-30°	682.0	5.5
30°-40°	1113.6	8.9
40°-50°	1879.5	15.1
50°-60°	2923.7	23.5
60°-70°	3482.8	27.9
70°-80°	1622.5	13.0
80°-90°	206.4	1.7
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°	12464.6	100.0
0°-180°	12464.6	100.0



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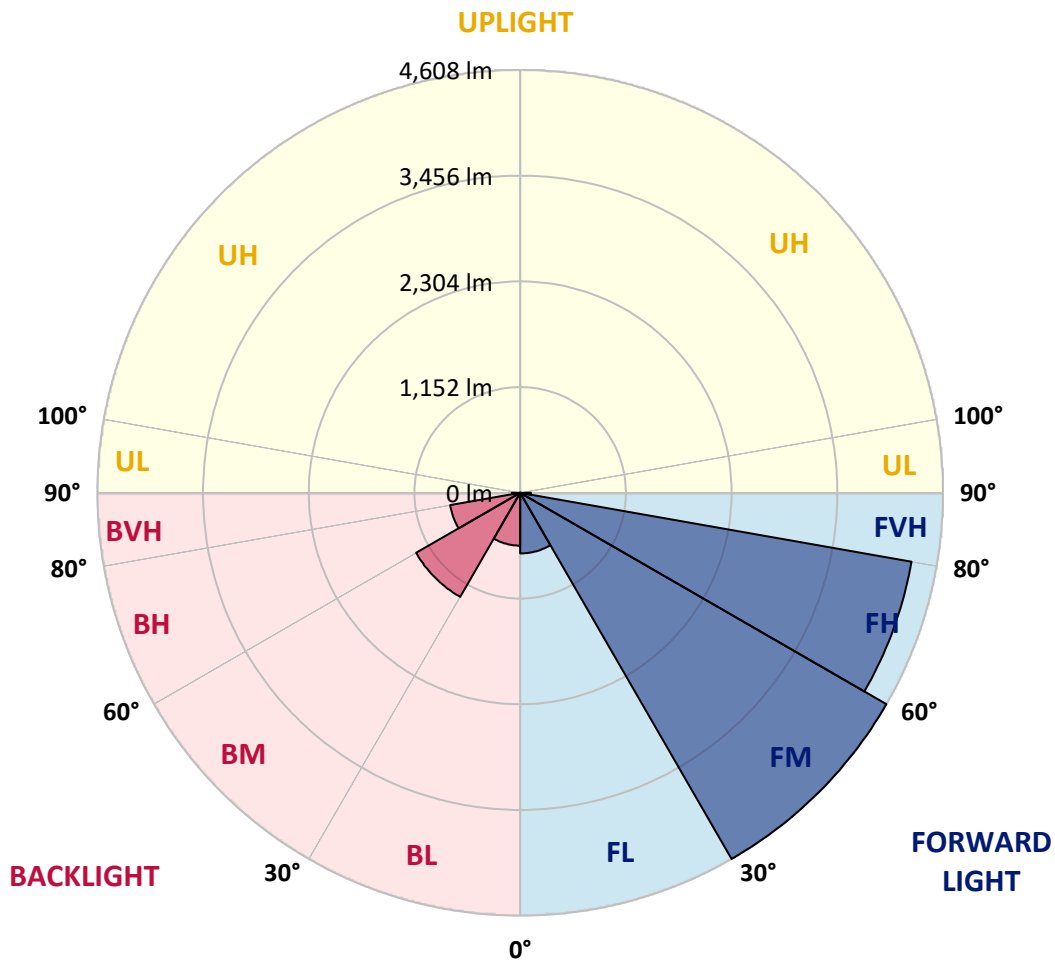
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	660.1	5.3			
FM	(30°-60°)	4607.8	37.0			
FH	(60°-80°)	4330.2	34.7			G2/5000
FVH	(80°-90°)	116.0	0.9			G2/225
BL	(0°-30°)	576.0	4.6	B2/1000		
BM	(30°-60°)	1309.1	10.5	B2/2500		
BH	(60°-80°)	775.1	6.2	B2/1000		G2/1000
BVH	(80°-90°)	90.4	0.7			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G2

Type III Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	57°	65°	75°	85°
0°	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2
2.5°	1531.4	1531.4	1535.3	1535.3	1535.3	1533.7	1529.0	1530.5	1527.4	1525.0	1521.0
5°	1500.3	1501.8	1506.6	1508.2	1510.6	1511.4	1511.4	1510.6	1511.4	1511.4	1509.1
7.5°	1457.1	1458.7	1464.4	1467.5	1474.7	1481.0	1484.3	1484.3	1488.3	1491.5	1492.3
10°	1430.8	1430.8	1434.0	1434.0	1439.6	1442.8	1453.1	1452.4	1463.5	1473.9	1478.7
12.5°	1427.6	1427.6	1426.0	1420.5	1417.2	1416.5	1426.8	1428.4	1445.1	1463.5	1472.3
15°	1438.0	1438.0	1433.2	1422.0	1410.0	1404.5	1414.8	1418.0	1436.4	1457.9	1471.5
17.5°	1471.5	1470.7	1460.4	1438.0	1417.2	1408.5	1411.7	1414.8	1431.6	1456.4	1473.0
20°	1545.7	1545.7	1523.4	1482.7	1446.8	1426.0	1421.2	1423.6	1435.6	1458.7	1480.3
22.5°	1675.8	1678.2	1638.3	1571.3	1509.8	1465.9	1446.8	1449.1	1454.7	1477.0	1501.1
25°	1867.3	1861.0	1804.3	1709.4	1613.5	1538.5	1499.4	1501.8	1501.8	1522.6	1547.3
27.5°	2070.0	2071.6	1990.2	1888.1	1761.9	1650.2	1588.0	1587.2	1586.4	1606.3	1632.7
30°	2299.0	2299.8	2205.7	2087.5	1943.1	1800.3	1706.9	1706.1	1698.9	1723.7	1757.9
32.5°	2549.6	2548.8	2439.4	2306.2	2145.8	1983.8	1862.5	1861.8	1856.1	1889.7	1931.1
35°	2827.3	2827.3	2718.8	2554.4	2381.2	2200.9	2060.4	2059.6	2062.8	2108.3	2147.4
37.5°	3161.6	3168.8	3038.0	2838.5	2649.3	2457.0	2293.5	2288.6	2264.7	2341.3	2406.0
40°	3510.4	3530.3	3394.7	3161.6	2957.4	2758.7	2578.3	2575.2	2554.4	2635.7	2740.3
42.5°	3887.8	3933.3	3782.5	3544.7	3322.0	3107.4	2926.3	2917.5	2837.7	2964.5	3128.2
45°	4382.6	4412.1	4193.5	3978.1	3768.1	3523.1	3307.7	3260.7	3180.8	3343.6	3555.9
47.5°	4719.4	4705.0	4568.5	4424.1	4289.2	4054.6	3723.4	3663.6	3566.2	3781.7	4015.5
50°	4928.4	4938.8	4862.2	4855.0	4847.9	4684.2	4192.7	4120.9	4008.3	4263.7	4536.6
52.5°	5066.5	5019.4	5032.9	5195.8	5392.9	5314.6	4723.4	4643.5	4527.8	4783.2	5091.2
55°	5009.0	4946.8	5072.1	5392.9	5856.5	5874.0	5305.8	5223.7	5124.7	5335.4	5758.3
57.5°	4771.2	4802.3	5000.3	5446.3	6173.3	6375.1	5975.4	5891.6	5696.9	5910.7	6391.9
60°	4436.8	4499.9	4802.3	5361.7	6395.1	6765.4	6710.4	6654.5	6319.3	6471.0	7057.4
62.5°	4077.8	4140.0	4511.8	5217.3	6295.3	7110.9	7431.7	7397.4	7006.4	7010.4	7479.6
65°	3547.1	3572.7	3952.5	4823.1	6018.4	7422.9	8153.9	8123.6	7663.1	7470.8	7597.7
67.5°	2678.9	2710.8	3022.8	3807.2	5175.8	7253.7	8730.9	8726.1	8058.2	7641.6	7316.9
69°	1978.2	2017.4	2271.9	2955.8	4279.6	6609.0	8758.0	8822.6	8165.1	7624.1	6842.0
70°	1447.6	1492.3	1727.7	2346.1	3564.7	5897.2	8525.8	8664.6	8124.4	7513.2	6471.7
72.5°	615.3	630.4	746.1	1059.0	1808.3	3555.9	6983.3	7275.3	7337.5	6731.8	5056.1
75°	385.4	390.3	435.7	543.4	804.3	1470.7	4522.3	4920.4	5478.2	5222.9	3385.0
77.5°	290.5	294.5	320.8	374.3	499.5	549.0	2098.0	2501.7	3137.7	3072.3	1684.6
80°	222.6	225.0	242.5	272.1	351.9	343.9	680.7	855.5	1309.5	1155.5	596.1
82.5°	174.7	175.5	190.7	196.3	245.8	231.4	341.6	380.6	529.1	439.7	291.2
85°	154.8	157.2	172.4	143.6	157.2	139.6	187.5	203.5	280.9	264.9	110.2
87.5°	79.0	83.0	144.4	122.9	79.0	66.2	82.1	88.6	114.2	123.7	53.5
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°	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2	1540.2
2.5°	1521.7	1522.6	1525.0	1529.0	1535.3	1543.3	1552.9	1562.5	1568.1	1572.1	1570.4
5°	1509.1	1509.8	1514.6	1521.7	1529.7	1541.7	1557.6	1569.6	1578.4	1584.0	1583.2
7.5°	1493.1	1495.5	1505.1	1513.0	1524.2	1533.7	1546.5	1557.6	1566.4	1572.1	1571.3
10°	1481.0	1483.5	1495.5	1505.8	1515.4	1517.0	1514.6	1511.4	1510.6	1514.6	1513.0
12.5°	1475.5	1480.3	1491.5	1498.6	1494.6	1479.5	1461.9	1454.7	1452.4	1460.4	1461.1
15°	1477.0	1481.0	1490.6	1485.8	1464.4	1438.8	1429.2	1434.8	1439.6	1444.4	1445.1
17.5°	1481.0	1483.5	1485.8	1468.3	1438.0	1421.2	1418.0	1412.5	1398.1	1390.1	1389.3
20°	1488.3	1491.5	1487.5	1459.5	1432.4	1410.0	1371.8	1337.4	1304.7	1287.2	1280.0
22.5°	1513.0	1515.4	1503.4	1476.3	1434.8	1362.2	1284.7	1225.7	1175.5	1148.4	1137.9
25°	1561.6	1565.6	1549.0	1514.6	1406.0	1279.2	1169.8	1090.1	1027.0	994.3	985.5
27.5°	1647.1	1651.0	1632.7	1543.3	1339.0	1168.3	1035.8	956.8	902.5	874.6	870.6
30°	1774.7	1780.3	1763.6	1542.5	1236.8	1027.0	904.9	858.7	827.6	808.3	807.6
32.5°	1951.9	1972.7	1904.0	1515.4	1110.8	884.1	806.0	790.0	774.9	762.1	762.1
35°	2176.9	2225.6	2042.8	1458.7	972.0	786.9	750.9	735.7	716.6	703.1	701.4
37.5°	2445.9	2521.7	2141.9	1358.2	852.2	739.7	717.4	692.6	662.4	636.0	629.6
40°	2815.4	2832.9	2190.4	1194.6	762.9	714.2	686.3	655.2	616.8	587.3	584.1
42.5°	3186.4	3128.9	2180.9	1019.1	711.8	691.1	654.4	620.0	585.7	561.0	561.0
45°	3608.6	3387.5	2108.3	842.7	665.5	664.7	624.8	592.1	565.8	547.4	543.4
47.5°	4012.3	3619.7	1983.0	712.6	617.7	638.4	605.7	579.3	555.4	537.9	534.7
50°	4502.3	3888.6	1849.8	621.6	571.3	615.3	597.7	584.1	561.0	530.7	527.4
52.5°	4989.0	4203.0	1746.8	553.0	530.7	596.9	602.5	604.1	582.6	523.4	519.5
55°	5511.8	4539.0	1638.3	499.5	497.2	588.1	613.7	612.0	601.7	525.1	518.7
57.5°	6008.9	4876.5	1476.3	462.1	470.9	579.3	616.0	590.5	572.1	533.1	522.7
60°	6420.7	5155.9	1238.5	435.7	448.5	561.8	600.1	561.8	530.7	531.4	521.9
62.5°	6620.9	5234.0	947.3	405.4	430.2	533.1	576.9	540.2	511.5	534.7	529.1
65°	6468.5	5011.4	675.1	377.5	407.7	499.5	563.3	521.9	502.0	550.7	544.2
67.5°	5921.1	4404.9	490.0	352.7	386.3	465.2	537.9	505.1	492.3	562.6	548.2
69°	5339.4	3803.2	424.5	338.4	371.0	446.9	521.1	496.3	485.2	545.8	525.1
70°	4855.8	3339.6	391.8	329.6	358.3	436.5	508.3	490.8	478.0	525.9	501.1
72.5°	3481.6	2158.5	329.6	303.2	324.8	413.4	480.4	470.0	450.9	474.9	458.9
75°	2103.5	1126.8	280.1	276.1	289.7	381.5	447.6	434.9	415.7	418.2	410.2
77.5°	966.4	520.3	234.6	244.2	253.0	341.6	407.7	393.4	375.8	369.5	370.3
80°	423.7	304.0	196.3	208.3	213.1	307.2	364.7	348.7	329.6	363.9	337.6
82.5°	229.0	176.4	153.2	161.2	174.7	267.3	316.8	296.0	277.7	323.2	261.0
85°	92.6	90.2	103.7	111.7	121.3	192.3	264.9	243.4	221.1	197.9	193.1
87.5°	39.9	43.1	51.0	54.2	64.7	119.7	178.0	155.6	156.4	134.1	131.7
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)