

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: P196192

Luminaire Tested: **NAV-AF-04-D-UNV-SL4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196192
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-04-D-UNV-SL4
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 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: 23808.2 lumens
Efficiency: N/A
Efficacy: 105.8 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B2 - U0 - G4

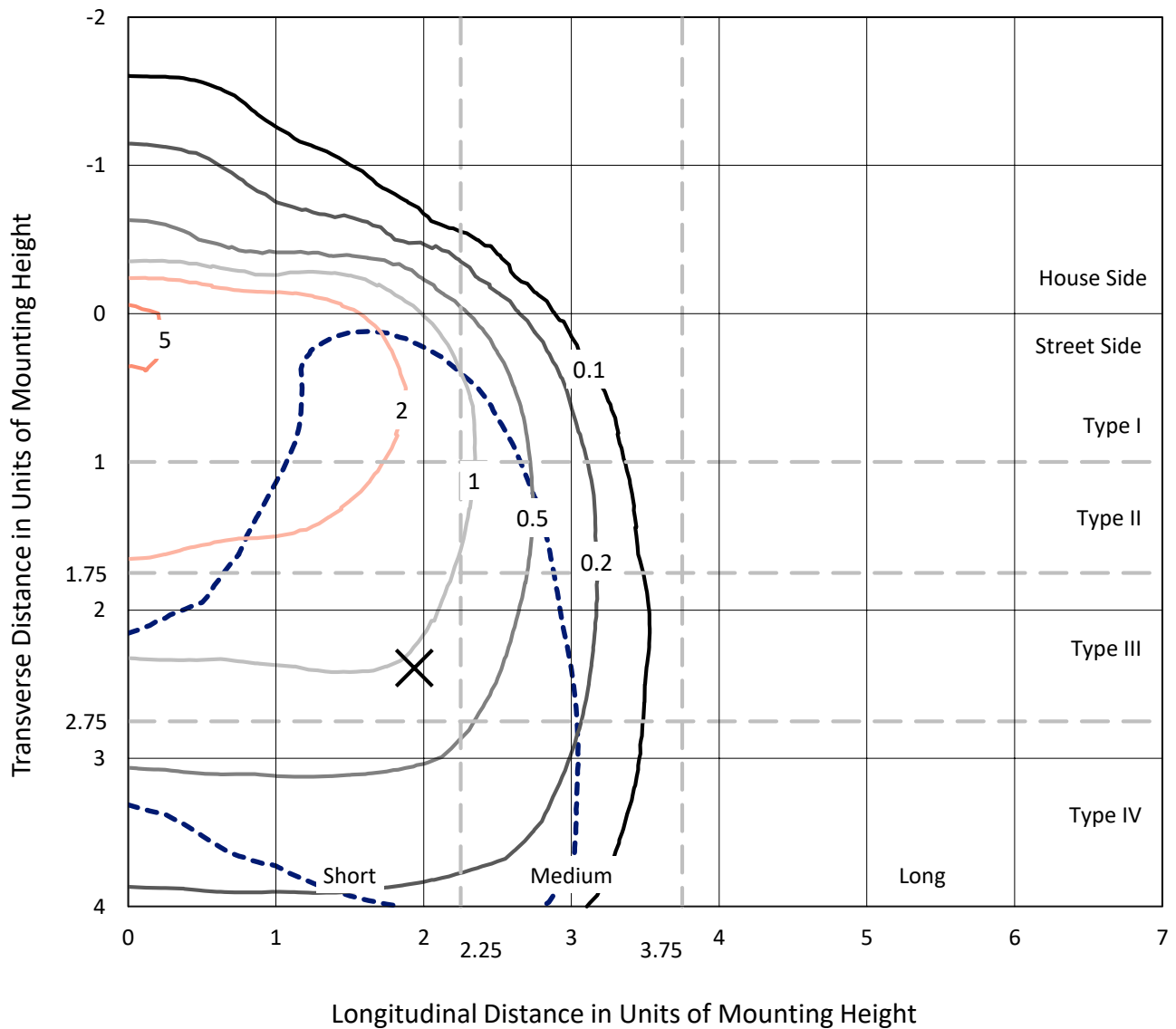
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

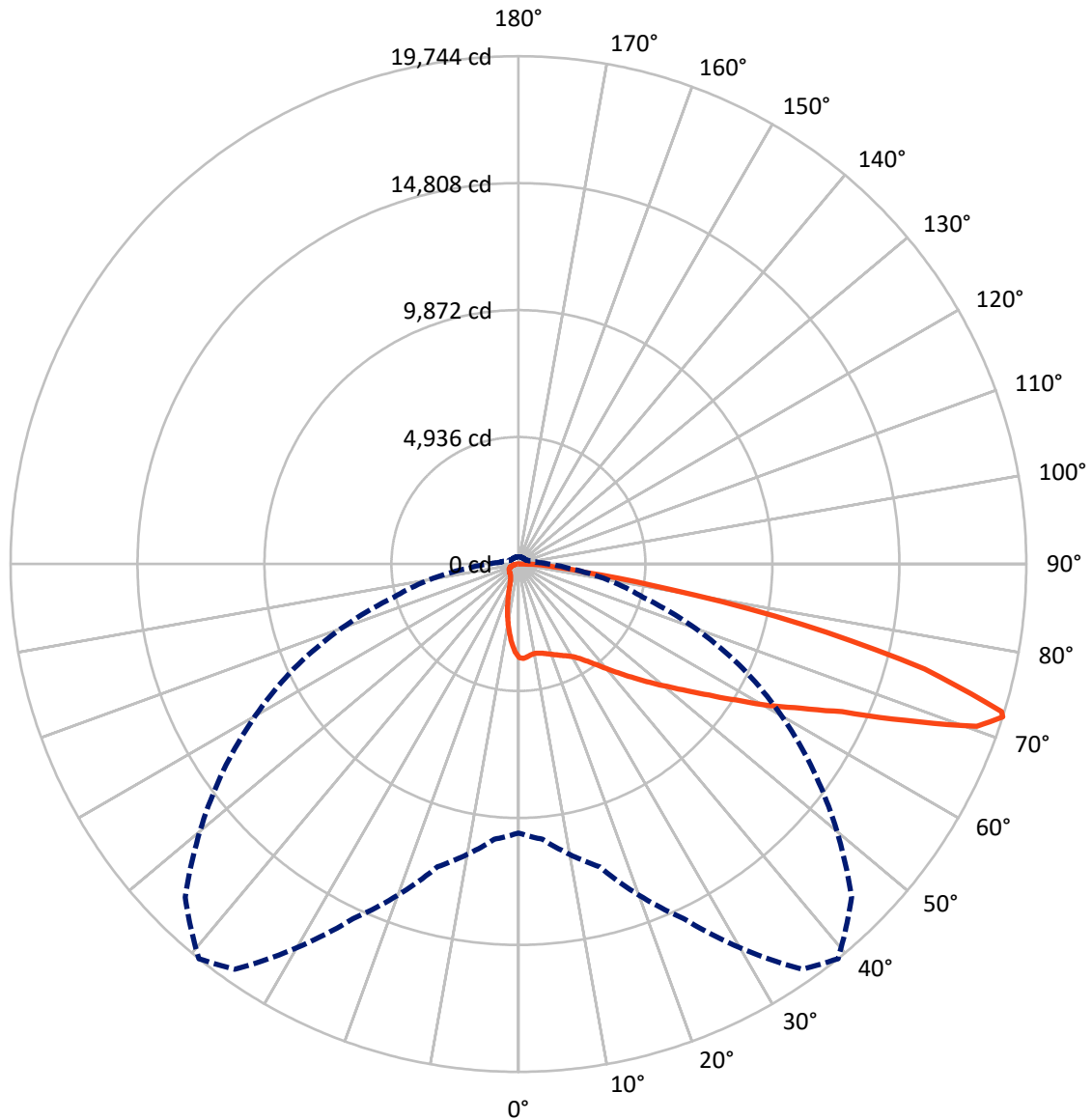
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.8 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	2729.9	0.0	2729.9
	% Fixture	11.5	0.0	11.5
Street Side	Lumens	21078.2	0.0	21078.2
	% Fixture	88.5	0.0	88.5
Total	Lumens	23808.2	0.0	23808.2
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.5	1.3
10°-20°	785.1	3.3
20°-30°	1223.5	5.1
30°-40°	1883.9	7.9
40°-50°	3071.2	12.9
50°-60°	4772.3	20.0
60°-70°	6387.5	26.8
70°-80°	4593.5	19.3
80°-90°	778.7	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°	23808.2	100.0
0°-180°	23808.2	100.0



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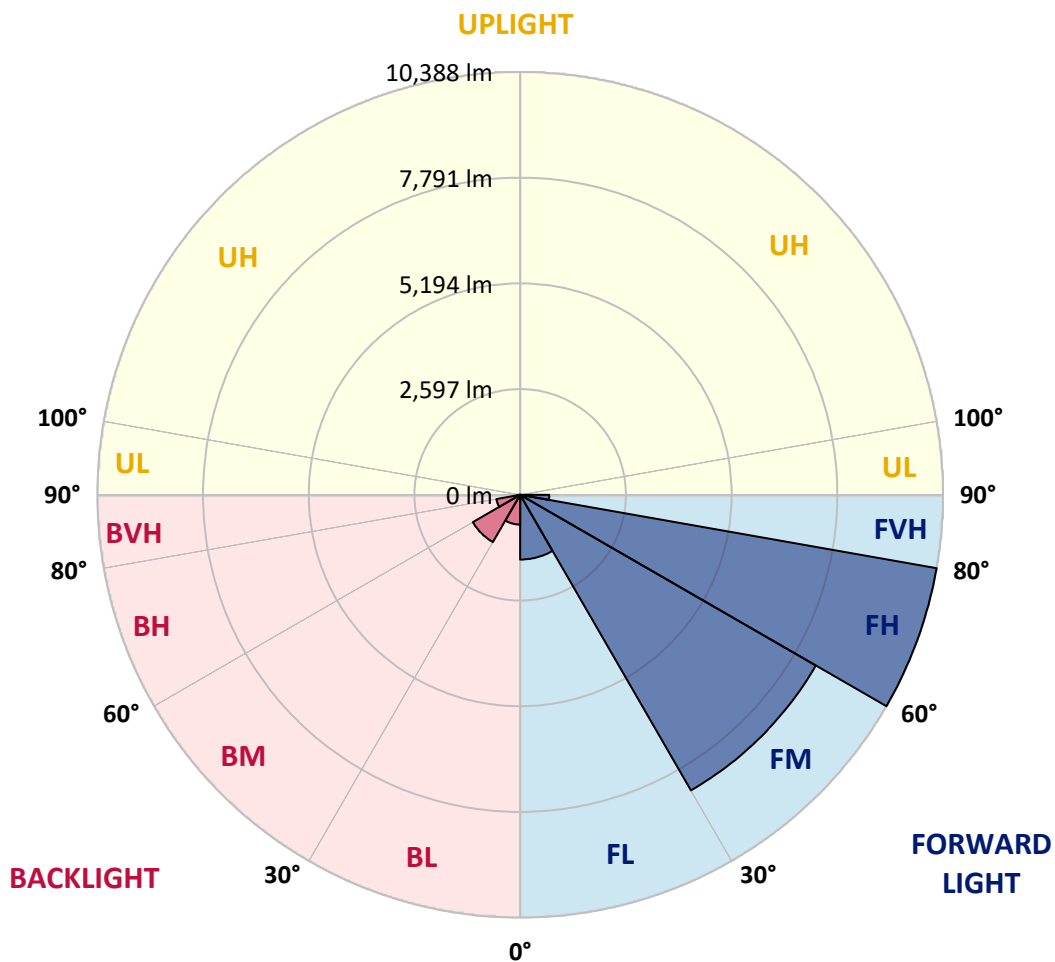
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1590.3	6.7			
FM	(30°-60°)	8385.7	35.2			
FH	(60°-80°)	10387.9	43.6			G4/12000
FVH	(80°-90°)	714.3	3.0			G4/750
BL	(0°-30°)	730.8	3.1	B2/1000		
BM	(30°-60°)	1341.6	5.6	B2/2500		
BH	(60°-80°)	593.1	2.5	B2/1000		G2/1000
BVH	(80°-90°)	64.4	0.3			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G4

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	39°	45°	55°	65°	75°	85°
0°	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0
2.5°	3714.2	3715.9	3711.1	3696.6	3683.9	3677.5	3666.3	3647.1	3621.6	3604.0	3589.5
5°	3679.0	3683.9	3680.7	3656.7	3634.3	3621.6	3604.0	3576.8	3543.2	3528.9	3495.3
7.5°	3651.9	3655.1	3645.5	3618.4	3575.2	3559.3	3527.2	3492.0	3461.8	3441.0	3401.0
10°	3632.7	3636.0	3627.9	3600.8	3552.8	3533.7	3495.3	3457.0	3417.0	3391.4	3346.7
12.5°	3605.6	3611.9	3611.9	3599.2	3567.2	3554.4	3516.1	3474.6	3437.7	3410.6	3354.7
15°	3600.8	3608.8	3623.2	3621.6	3611.9	3602.3	3572.0	3530.4	3498.5	3466.5	3397.8
17.5°	3640.7	3658.3	3687.1	3696.6	3690.3	3669.5	3634.3	3596.0	3560.8	3530.4	3445.7
20°	3741.4	3751.0	3794.1	3813.4	3781.3	3751.0	3704.6	3655.1	3623.2	3599.2	3490.5
22.5°	3893.2	3906.0	3941.2	3942.8	3875.7	3838.9	3779.8	3719.0	3688.7	3679.0	3551.3
25°	4136.2	4133.0	4142.5	4102.6	3981.1	3938.0	3866.0	3795.8	3775.0	3794.1	3640.7
27.5°	4427.0	4419.0	4388.7	4284.8	4101.0	4045.1	3958.8	3896.4	3896.4	3941.2	3762.2
30°	4762.7	4754.7	4655.6	4481.3	4243.3	4179.4	4088.2	4022.7	4056.3	4142.5	3926.8
32.5°	5117.5	5088.7	4949.6	4716.3	4446.3	4375.9	4288.0	4220.9	4284.8	4431.8	4163.3
35°	5451.5	5435.6	5264.5	4988.0	4708.3	4649.2	4588.4	4505.4	4607.7	4836.2	4497.4
37.5°	5796.8	5784.0	5574.6	5280.5	5028.0	4988.0	4936.9	4879.4	5044.0	5344.4	4949.6
40°	6181.9	6156.3	5892.6	5598.5	5400.4	5381.1	5354.0	5338.1	5603.3	6050.9	5521.8
42.5°	6618.2	6568.7	6228.2	5948.6	5806.3	5822.3	5807.9	5871.8	6277.7	6865.9	6202.7
45°	7116.9	7017.7	6562.2	6320.9	6255.4	6319.4	6349.7	6512.7	7075.2	7807.3	6963.4
47.5°	7583.5	7455.7	6928.2	6725.3	6762.0	6872.3	6958.6	7246.3	7949.6	8737.4	7740.2
50°	8013.4	7869.6	7319.8	7144.0	7323.0	7479.6	7658.6	8064.5	8879.6	9694.7	8452.9
52.5°	8331.5	8227.6	7711.4	7601.1	7967.0	8174.8	8460.9	8973.9	9819.4	10607.4	9089.0
55°	8577.6	8521.7	8093.4	8125.3	8695.9	8993.2	9340.0	9929.7	10813.5	11425.6	9600.5
57.5°	8862.1	8820.5	8529.7	8758.2	9600.5	9974.5	10383.6	11038.9	11759.6	12146.4	10001.6
60°	9162.6	9162.6	9015.5	9520.5	10732.0	11160.3	11567.8	12077.7	12702.6	12795.3	10164.7
62.5°	9389.5	9448.6	9501.4	10332.4	11806.0	12338.2	12785.7	13274.7	13679.1	13114.9	9781.0
65°	9718.7	9845.0	10142.3	11270.6	13135.7	13832.5	14436.7	14847.4	14470.3	12860.8	8529.7
67.5°	10284.5	10471.5	11104.3	12667.4	15171.8	16215.5	16802.0	16092.4	14315.2	11261.1	6533.5
70°	10794.3	11058.0	12140.0	14439.9	17818.5	18902.1	18631.9	15803.2	12467.6	8254.8	4019.5
72°	10455.5	10743.2	12187.9	15211.8	19232.9	19744.3	18320.3	14005.1	9634.0	5037.5	1981.8
72.5°	10233.4	10532.2	12033.0	15192.6	19271.3	19637.3	17887.2	13290.7	8745.4	4407.9	1603.0
75°	8548.8	8804.5	10346.8	13464.9	16982.6	16311.4	13958.8	8601.6	4019.5	1424.0	824.7
77.5°	5582.5	5777.5	7134.5	9328.8	11895.5	11249.8	8496.1	4027.5	1507.1	864.6	620.1
80°	2804.8	2944.0	3818.2	4904.9	6420.0	5907.0	3922.0	1948.2	1008.4	624.9	487.4
82.5°	1951.4	2079.2	2629.1	2504.4	2683.4	2597.1	1844.4	1625.4	754.3	394.8	255.7
85°	1636.6	1769.2	2175.2	1785.3	1460.8	1331.3	1321.8	1535.9	498.7	195.0	215.7
87.5°	1427.2	1628.5	1794.8	1304.2	1002.1	883.8	973.3	1408.0	158.3	107.1	65.6
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°	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0	3636.0
2.5°	3565.6	3560.8	3536.9	3500.1	3472.9	3455.3	3421.8	3420.1	3423.4	3394.6	3405.8
5°	3464.9	3445.7	3383.4	3298.7	3230.0	3164.5	3092.6	3068.5	3047.8	3004.6	3009.4
7.5°	3359.5	3325.9	3217.2	3078.2	2945.5	2824.1	2704.2	2645.0	2600.3	2544.4	2544.4
10°	3297.1	3244.4	3078.2	2875.2	2664.2	2486.8	2307.8	2200.8	2122.4	2050.5	2045.7
12.5°	3293.9	3214.0	2982.3	2702.5	2413.3	2164.0	1919.5	1754.9	1638.2	1553.5	1545.5
15°	3319.5	3207.6	2902.3	2541.1	2176.7	1852.4	1550.3	1340.9	1192.2	1097.9	1088.4
17.5°	3341.9	3199.6	2816.1	2371.7	1946.6	1551.8	1216.3	998.9	858.3	781.5	773.6
20°	3362.6	3182.0	2705.8	2192.8	1692.5	1270.6	950.9	775.1	682.4	639.2	634.5
22.5°	3393.0	3166.0	2590.7	1991.4	1443.2	1034.0	784.7	658.5	609.0	588.1	584.9
25°	3442.5	3167.7	2478.8	1785.3	1214.7	861.4	679.2	600.9	573.8	559.3	559.3
27.5°	3514.4	3186.8	2368.5	1575.9	1021.2	743.2	616.9	570.6	553.0	541.8	538.6
30°	3619.9	3222.0	2251.9	1377.7	867.9	661.6	580.1	551.4	537.0	527.4	525.8
32.5°	3773.4	3284.3	2128.9	1197.1	751.2	604.2	553.0	535.4	524.3	516.2	514.6
35°	4001.9	3394.6	2009.0	1043.6	668.1	562.5	530.6	516.2	509.8	506.7	505.0
37.5°	4337.5	3572.0	1895.5	923.7	613.7	535.4	508.2	500.2	497.1	497.1	497.1
40°	4759.5	3805.4	1793.2	839.0	583.4	514.6	492.2	485.9	485.9	487.4	487.4
42.5°	5272.5	4097.8	1705.3	781.5	565.8	500.2	481.1	477.8	476.3	476.3	477.8
45°	5868.7	4443.0	1650.9	736.7	553.0	492.2	473.1	471.5	465.0	461.9	461.9
47.5°	6468.0	4812.3	1647.8	711.2	537.0	482.6	465.0	465.0	452.2	445.9	447.5
50°	7027.4	5143.1	1683.0	704.8	527.4	468.3	457.1	458.7	441.1	433.1	431.5
52.5°	7478.1	5395.6	1726.0	712.8	527.4	455.5	442.7	450.7	431.5	422.0	420.3
55°	7826.5	5571.4	1742.1	730.4	533.8	444.3	429.9	442.7	428.3	415.5	415.5
57.5°	8075.8	5627.4	1673.3	738.4	543.4	442.7	417.2	441.1	433.1	417.2	417.2
60°	7984.6	5302.9	1417.6	708.0	541.8	439.5	407.5	444.3	449.1	431.5	431.5
62.5°	7273.5	4436.6	1137.9	639.2	514.6	428.3	396.4	441.1	460.3	453.9	450.7
65°	5921.4	3254.0	882.2	557.8	468.3	404.4	372.4	412.4	434.8	441.1	442.7
67.5°	4172.9	2060.1	685.7	474.6	410.7	369.2	345.2	364.4	372.4	375.6	382.0
70°	2282.2	1115.5	545.0	399.6	351.6	334.0	316.4	318.0	314.9	311.7	314.9
72°	1145.9	728.8	460.3	346.8	311.7	300.4	292.5	287.7	287.7	282.8	284.5
72.5°	986.1	677.6	444.3	334.0	302.1	292.5	286.1	281.3	279.7	276.5	278.0
75°	656.8	537.0	370.8	279.7	257.3	250.9	254.1	249.3	250.9	247.8	249.3
77.5°	530.6	461.9	314.9	236.5	220.5	210.9	217.4	218.9	222.2	218.9	217.4
80°	444.3	393.1	263.7	195.0	183.8	175.8	179.0	190.2	191.8	182.2	180.6
82.5°	287.7	316.4	207.8	151.8	140.7	137.5	145.5	156.6	159.8	147.0	143.8
85°	241.3	254.1	150.3	103.9	92.7	89.5	105.5	116.7	124.7	111.9	108.6
87.5°	67.1	124.7	73.6	49.5	41.5	41.5	51.1	60.8	71.9	73.6	73.6
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)