

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: P196168

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

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196168
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24285)
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-HSS
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20331.2 lumens
Efficiency: N/A
Efficacy: 90.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U0 - G4

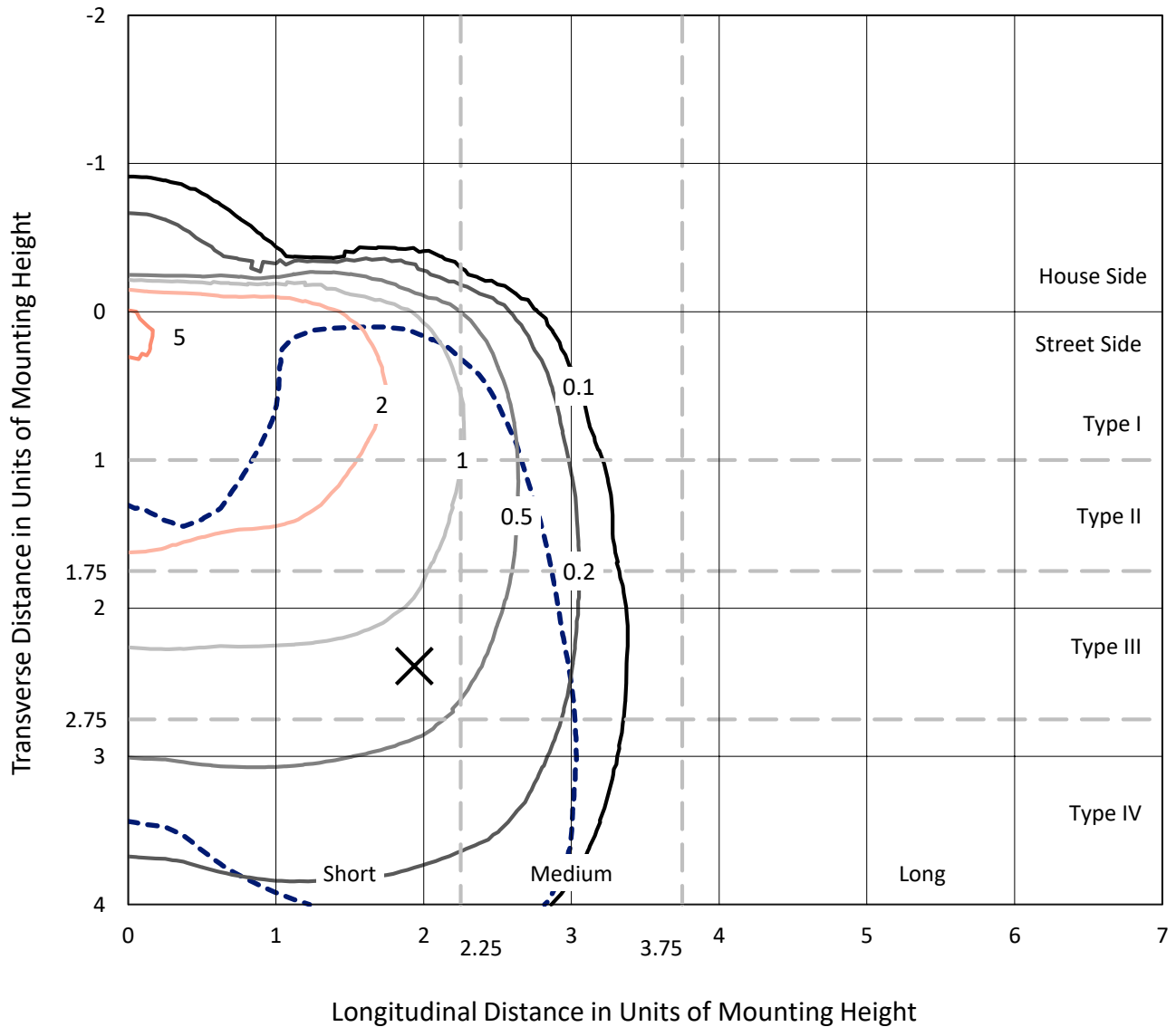
Input Watts (W): 225
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

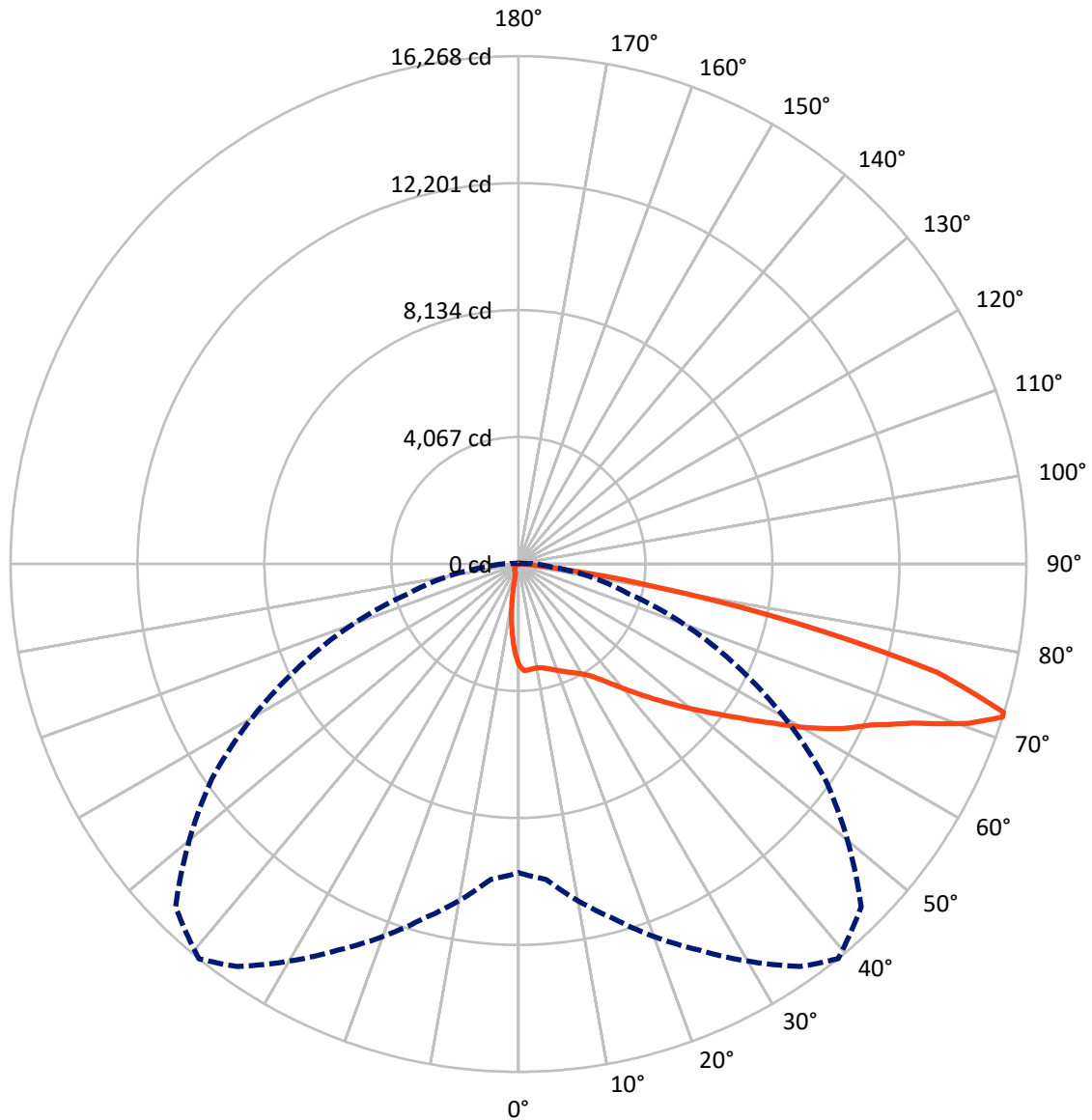
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5.5 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	1332.5	0.0	1332.5
	% Fixture	6.6	0.0	6.6
Street Side	Lumens	18998.7	0.0	18998.7
	% Fixture	93.4	0.0	93.4
Total	Lumens	20331.2	0.0	20331.2
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	264.7	1.3
10°-20°	640.8	3.2
20°-30°	1064.3	5.2
30°-40°	1696.2	8.3
40°-50°	2799.8	13.8
50°-60°	4228.2	20.8
60°-70°	5507.9	27.1
70°-80°	3721.7	18.3
80°-90°	407.6	2.0
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°	20331.2	100.0
0°-180°	20331.2	100.0



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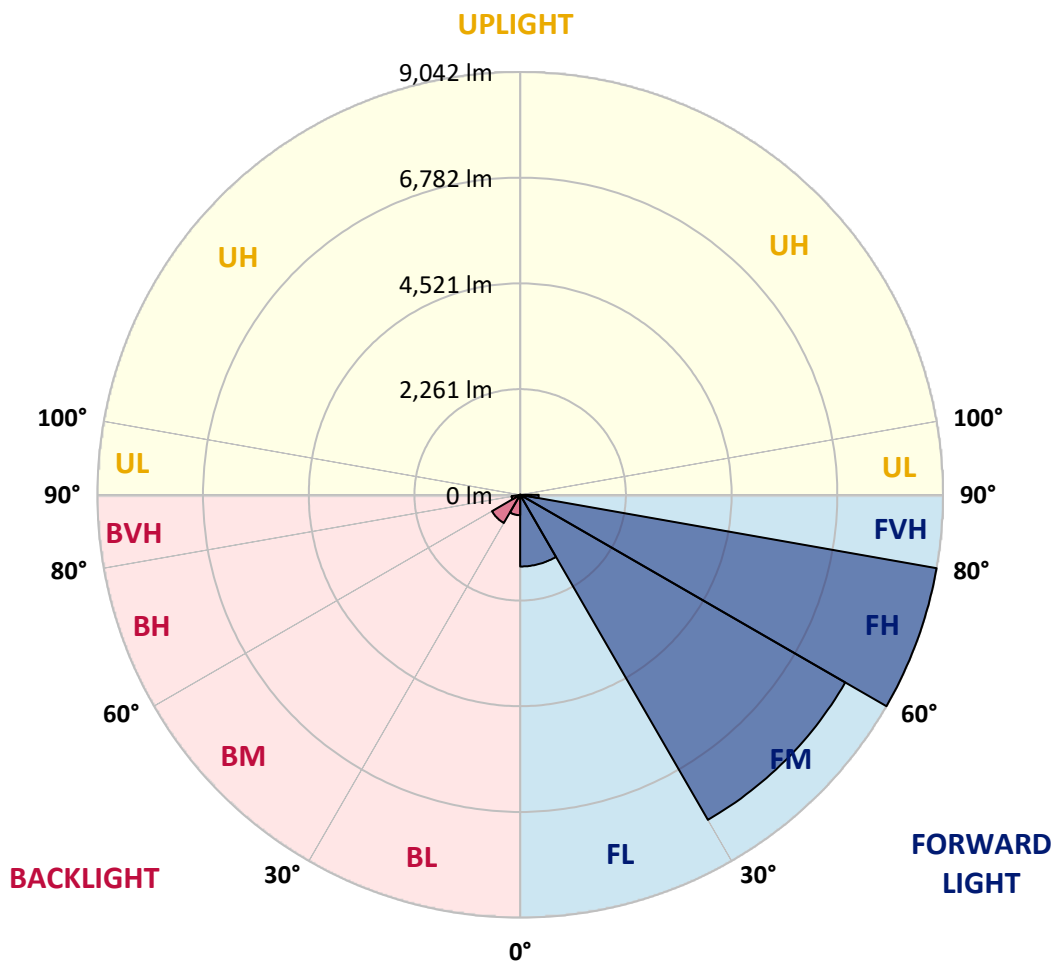
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1533.4	7.5			
FM	(30°-60°)	8027.0	39.5			
FH	(60°-80°)	9042.4	44.5			G4/12000
FVH	(80°-90°)	395.9	1.9			G3/500
BL	(0°-30°)	436.3	2.1	B1/500		
BM	(30°-60°)	697.2	3.4	B1/1000		
BH	(60°-80°)	187.3	0.9	B1/500		G1/500
BVH	(80°-90°)	11.7	0.1			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G4

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	39°	45°	55°	65°	75°	85°
0°	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1
2.5°	3465.1	3471.5	3463.5	3449.1	3428.3	3415.5	3397.9	3359.6	3311.7	3270.1	3222.2
5°	3492.3	3495.5	3485.9	3458.7	3426.8	3409.2	3386.8	3345.3	3295.6	3238.2	3151.8
7.5°	3500.2	3498.7	3487.4	3453.9	3404.4	3382.0	3343.6	3292.5	3241.3	3188.6	3091.2
10°	3497.1	3497.1	3489.1	3457.2	3401.2	3380.4	3337.3	3282.9	3218.9	3166.2	3062.3
12.5°	3485.9	3492.3	3487.4	3470.0	3428.3	3412.4	3374.0	3319.7	3258.9	3204.6	3094.3
15°	3500.2	3509.8	3519.5	3513.0	3489.1	3474.7	3439.6	3383.6	3334.0	3276.5	3158.3
17.5°	3557.8	3578.6	3601.0	3602.5	3577.0	3551.4	3511.5	3453.9	3406.0	3353.2	3225.4
20°	3666.5	3682.5	3724.1	3732.0	3680.9	3644.2	3588.2	3521.0	3473.1	3428.3	3287.7
22.5°	3827.9	3845.5	3879.0	3867.9	3781.5	3738.4	3668.1	3591.4	3541.9	3516.3	3359.6
25°	4072.5	4077.3	4085.3	4035.7	3893.5	3845.5	3759.2	3672.9	3632.9	3629.7	3461.9
27.5°	4360.1	4366.6	4331.4	4221.1	4018.2	3955.8	3858.3	3780.0	3760.8	3784.8	3591.4
30°	4689.4	4691.0	4593.5	4414.5	4162.0	4093.2	3992.6	3906.2	3923.8	3983.0	3757.6
32.5°	5026.7	5010.6	4876.4	4643.1	4358.6	4275.4	4189.1	4102.9	4154.0	4273.9	4000.6
35°	5335.1	5328.8	5170.5	4898.8	4614.3	4540.8	4478.4	4387.3	4470.4	4665.5	4331.4
37.5°	5643.6	5638.8	5458.2	5175.3	4929.2	4876.4	4830.1	4759.7	4895.5	5181.7	4774.1
40°	5984.1	5976.1	5753.9	5482.2	5295.2	5266.4	5239.2	5208.9	5440.6	5838.6	5325.5
42.5°	6404.4	6369.2	6067.1	5816.2	5697.9	5705.9	5707.6	5737.8	6100.7	6620.1	5976.1
45°	6887.0	6808.8	6382.0	6174.2	6140.7	6188.6	6236.5	6362.9	6869.5	7520.0	6695.2
47.5°	7355.3	7229.1	6744.8	6559.4	6628.1	6727.2	6842.3	7088.4	7732.6	8461.3	7347.3
50°	7758.2	7628.7	7104.4	6951.0	7170.0	7317.0	7521.6	7894.0	8643.6	9257.3	7758.2
52.5°	8074.6	7972.3	7484.8	7382.5	7770.9	7972.3	8293.6	8782.6	9503.5	9781.6	8045.8
55°	8307.9	8256.8	7849.2	7863.6	8439.0	8729.9	9129.4	9682.4	10229.1	10189.1	8261.6
57.5°	8571.7	8531.7	8231.3	8431.1	9243.0	9618.5	10080.5	10524.7	10756.5	10516.8	8472.6
60°	8841.8	8854.6	8694.8	9118.3	10237.1	10652.6	11055.4	11165.7	11208.9	10849.2	8694.8
62.5°	9046.4	9100.7	9115.1	9859.9	11256.8	11611.6	11785.8	11707.6	11698.0	11295.1	8677.2
65°	9281.3	9423.5	9660.1	10673.5	12183.9	12417.2	12541.8	12655.3	12415.6	11427.8	7823.6
67.5°	9687.2	9911.1	10443.3	11670.7	13254.7	13599.9	13953.2	13833.3	12522.7	10080.5	5960.0
70°	10233.9	10507.2	11447.0	12973.4	14707.5	15286.2	15581.8	13738.9	10631.8	6965.4	3143.8
72°	9888.7	10136.4	11757.1	13638.3	15736.9	16267.5	15527.5	11984.1	7707.0	3610.5	1053.2
72.5°	9553.0	9808.8	11658.0	13630.3	15839.2	16245.1	15174.2	11291.9	6819.9	2809.8	725.6
75°	6628.1	6951.0	9994.1	12252.5	14303.2	13857.2	11610.0	6837.5	2470.9	482.7	239.8
77.5°	3426.8	3676.1	6062.3	8657.9	9968.6	9129.4	6861.4	2966.5	684.0	255.7	158.3
80°	2124.2	2247.2	2835.4	4265.8	5178.5	4529.5	3027.2	1198.7	437.9	151.8	126.2
82.5°	1099.7	1193.9	1785.3	1721.3	1913.1	1590.3	1117.2	1003.7	270.2	94.3	129.5
85°	361.2	383.6	1096.4	1144.4	818.4	549.8	495.5	957.4	78.4	60.8	110.3
87.5°	48.0	56.0	385.1	655.3	402.7	249.3	297.3	337.3	27.2	33.6	30.4
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°	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1	3254.1
2.5°	3190.2	3169.4	3103.9	3038.4	2963.3	2894.5	2840.2	2805.0	2821.0	2768.2	2776.3
5°	3099.1	3046.3	2902.5	2747.4	2579.7	2423.1	2298.4	2205.7	2188.1	2108.2	2111.4
7.5°	3011.2	2924.9	2691.5	2435.9	2157.7	1932.4	1727.8	1548.7	1484.8	1419.2	1380.9
10°	2963.3	2844.9	2514.1	2141.8	1750.2	1419.2	1131.6	906.2	811.9	743.2	709.6
12.5°	2977.6	2821.0	2381.4	1874.8	1360.1	939.8	639.3	474.6	417.2	385.1	374.0
15°	3025.6	2825.8	2261.5	1614.3	989.3	569.0	375.6	321.2	316.5	314.9	313.2
17.5°	3070.3	2830.6	2135.3	1342.5	661.6	362.8	302.1	297.3	297.3	297.3	297.3
20°	3116.7	2832.1	1996.3	1058.0	434.8	297.3	284.5	281.3	284.5	284.5	284.5
22.5°	3171.0	2843.4	1862.0	781.5	321.2	279.7	271.7	270.2	271.7	271.7	270.2
25°	3238.2	2867.3	1716.6	559.5	290.9	268.5	260.5	258.9	260.5	258.9	258.9
27.5°	3327.7	2899.3	1547.1	401.2	278.1	257.4	249.3	249.3	249.3	247.8	247.8
30°	3442.7	2937.7	1320.2	316.5	265.4	246.1	239.8	239.8	238.1	236.5	236.5
32.5°	3607.3	3000.0	1072.5	286.1	250.9	231.8	225.4	227.0	225.4	223.7	222.2
35°	3840.7	3097.5	827.9	270.2	236.5	217.4	210.9	210.9	210.9	207.8	207.8
37.5°	4171.6	3246.1	620.1	254.1	222.2	203.0	195.0	195.0	193.4	190.2	191.8
40°	4580.7	3433.1	449.1	239.8	207.8	187.0	180.7	177.4	174.2	171.0	171.0
42.5°	5073.0	3615.3	337.3	225.4	193.4	174.2	166.2	163.1	156.6	153.4	151.8
45°	5624.4	3808.8	279.7	207.8	177.4	159.8	153.4	147.0	139.0	134.2	132.7
47.5°	6089.5	3927.0	249.3	190.2	161.4	145.5	139.0	129.5	119.9	116.7	116.7
50°	6369.2	3877.5	223.7	172.6	145.5	131.0	123.1	110.3	103.9	100.7	99.1
52.5°	6525.8	3730.4	203.0	158.3	131.0	115.1	103.9	92.7	89.5	86.3	86.3
55°	6632.9	3517.8	180.7	143.8	118.3	100.7	87.9	79.9	76.7	75.1	73.6
57.5°	6735.2	3258.9	159.8	131.0	105.5	89.5	75.1	71.9	65.6	63.9	63.9
60°	6765.6	2902.5	140.7	116.7	94.3	78.4	65.6	60.8	54.3	52.8	52.8
62.5°	6378.8	2309.5	124.7	99.1	83.1	67.1	57.5	51.1	44.7	44.7	44.7
65°	5330.3	1568.0	107.1	86.3	73.6	57.5	49.5	41.5	38.4	38.4	38.4
67.5°	3712.8	874.3	91.1	73.6	62.3	48.0	41.5	35.2	33.6	35.2	35.2
70°	1673.4	346.8	76.7	60.8	51.1	40.0	35.2	30.4	33.6	33.6	33.6
72°	501.9	185.4	63.9	49.5	41.5	35.2	30.4	28.7	31.9	33.6	33.6
72.5°	372.4	166.2	60.8	48.0	41.5	33.6	28.7	28.7	31.9	33.6	33.6
75°	191.8	113.4	46.3	35.2	30.4	27.2	23.9	27.2	31.9	31.9	31.9
77.5°	150.3	92.7	38.4	27.2	25.6	23.9	22.4	25.6	28.7	28.7	28.7
80°	140.7	60.8	30.4	25.6	22.4	20.8	20.8	22.4	25.6	27.2	27.2
82.5°	142.3	49.5	27.2	23.9	20.8	19.1	19.1	20.8	23.9	25.6	25.6
85°	91.1	33.6	23.9	20.8	19.1	17.6	17.6	19.1	22.4	23.9	23.9
87.5°	30.4	25.6	20.8	19.1	16.0	16.0	16.0	16.0	19.1	20.8	22.4
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)