

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: P196012

Luminaire Tested: **NAV-AF-04-D-UNV-AFL-600**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196012
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24160)
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-AFL-600
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) 70 CRI, 4000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16848 lumens
Efficiency: N/A
Efficacy: 130.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short - Full Cutoff
BUG Rating: B2 - U0 - G2

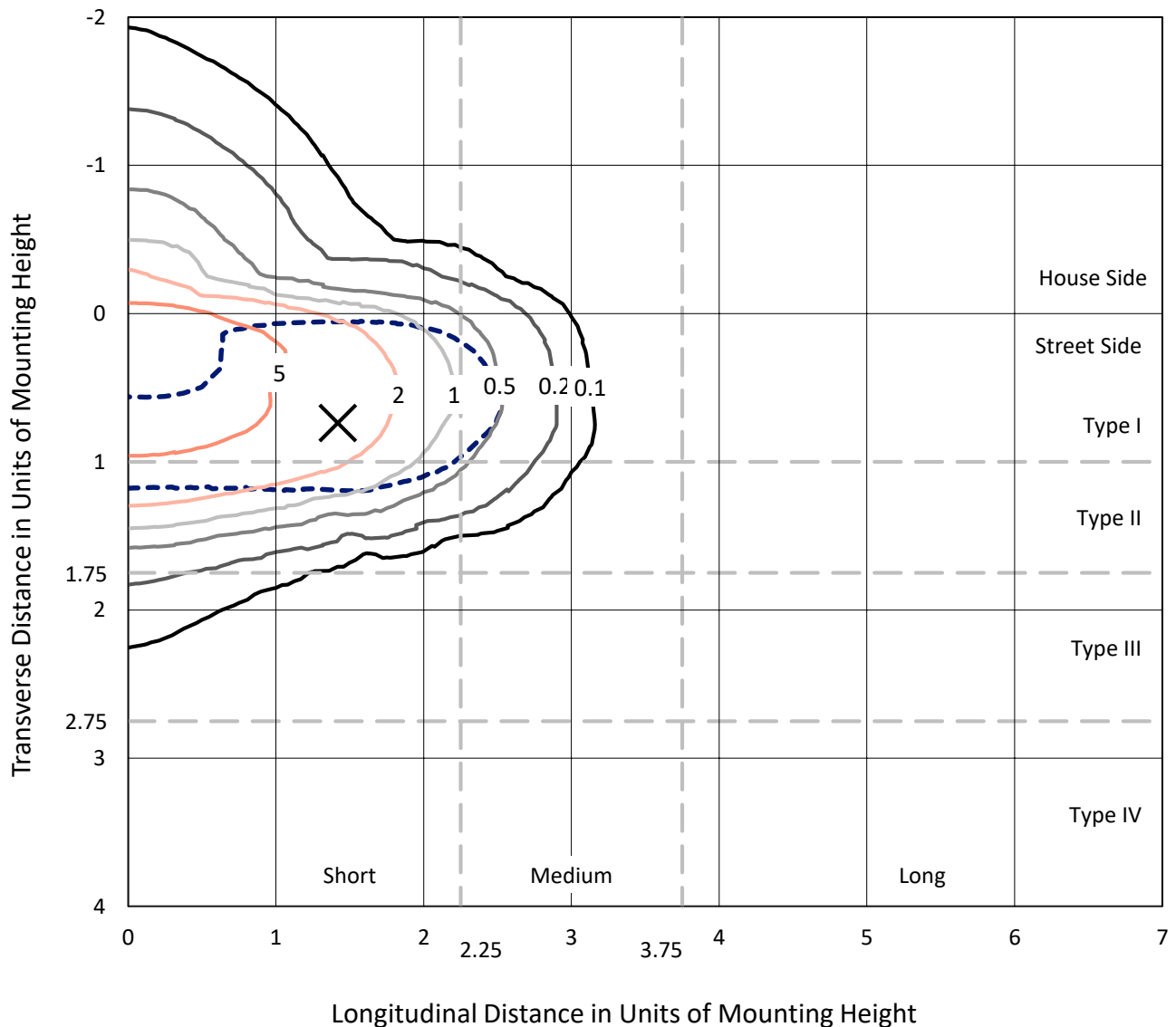
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

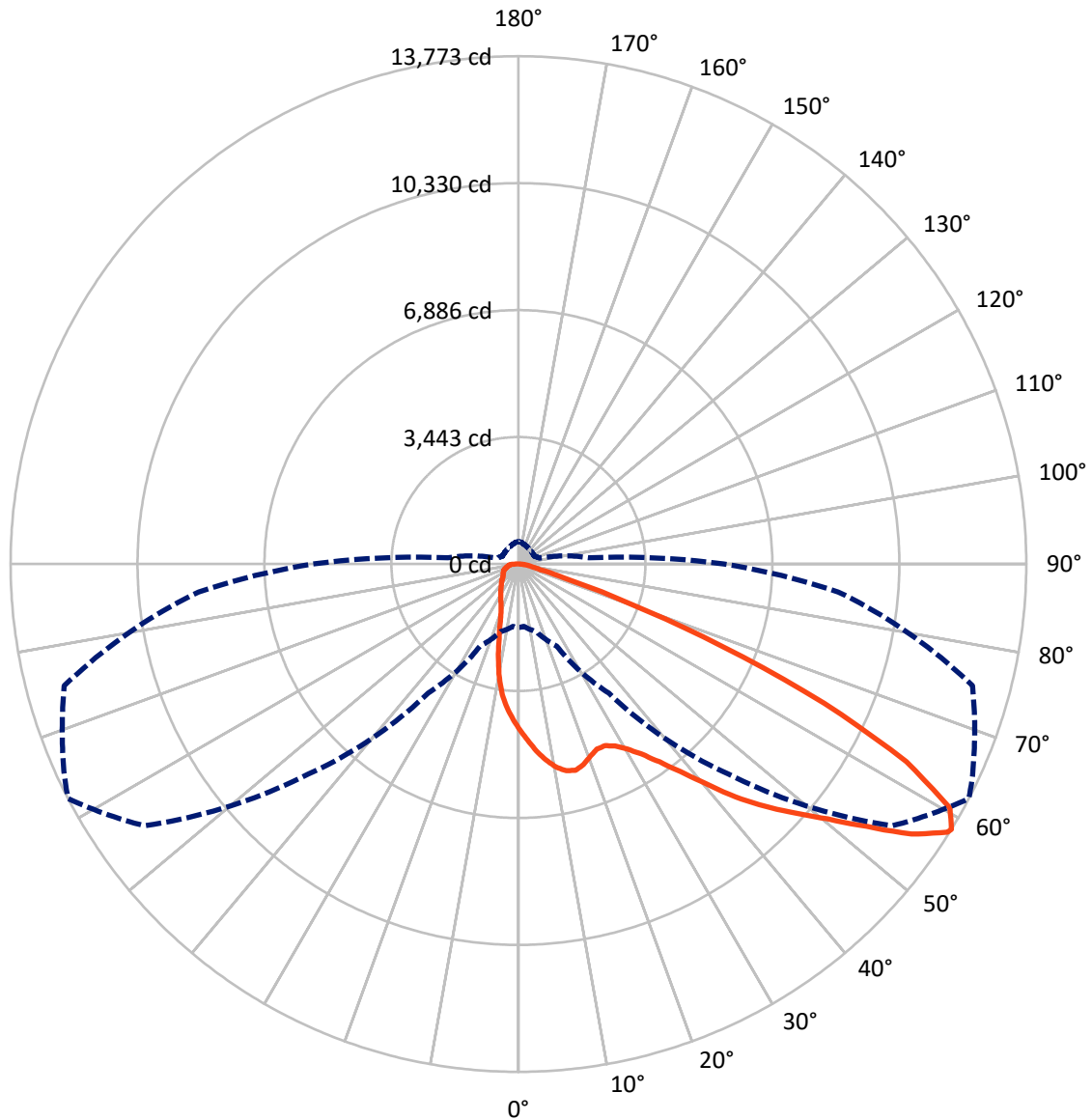
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 8.4 fc
 Type II - Short - Full Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 62.5-Deg Lateral - - - Horizontal Cone Through 58-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2586.8	0.0	2586.8
	% Fixture	15.4	0.0	15.4
Street Side	Lumens	14261.2	0.0	14261.2
	% Fixture	84.6	0.0	84.6
Total	Lumens	16848.0	0.0	16848.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.1	2.4
10°-20°	1014.7	6.0
20°-30°	1644.5	9.8
30°-40°	2625.6	15.6
40°-50°	3819.0	22.7
50°-60°	3996.2	23.7
60°-70°	2436.2	14.5
70°-80°	681.3	4.0
80°-90°	228.4	1.4
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°	16848.0	100.0
0°-180°	16848.0	100.0



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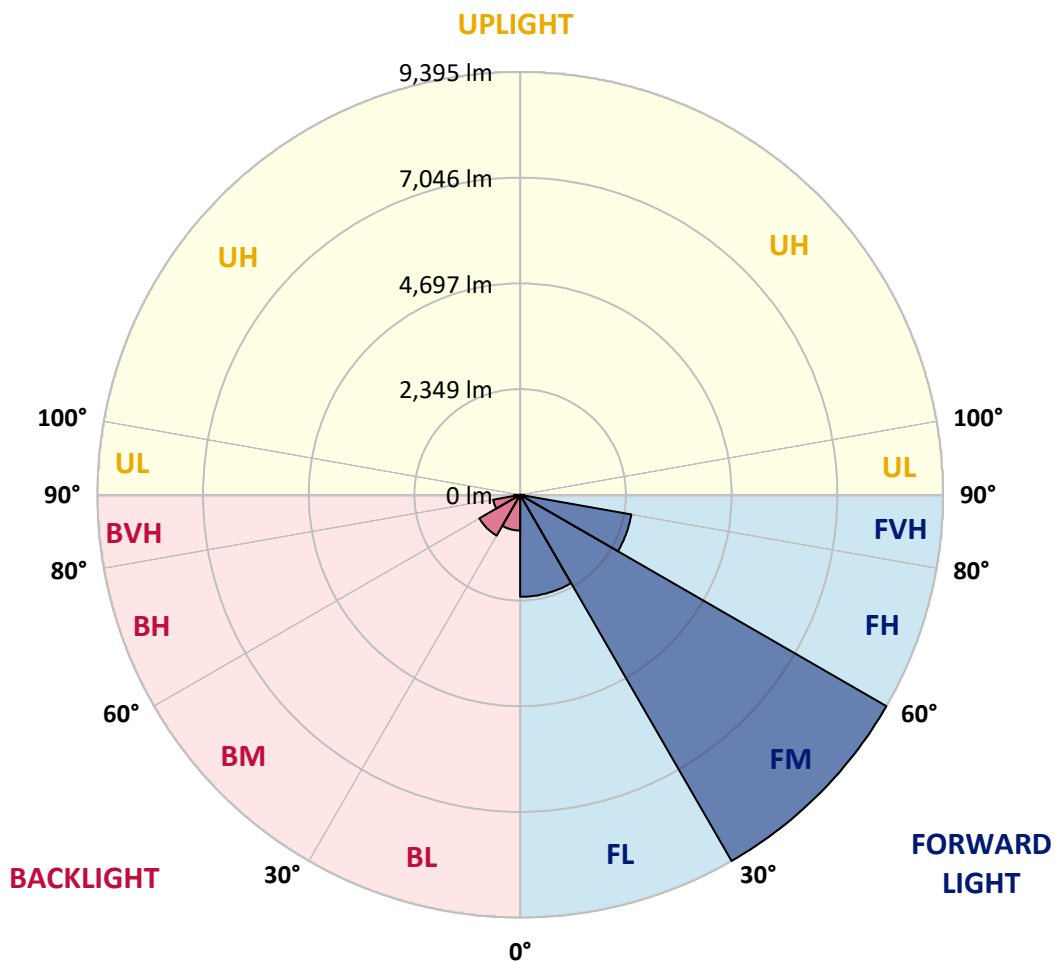
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	2266.1	13.5			
FM (30°-60°)	9394.6	55.8			
FH (60°-80°)	2508.6	14.9			G2/5000
FVH (80°-90°)	91.9	0.5			G1/100
BL (0°-30°)	795.2	4.7	B2/1000		
BM (30°-60°)	1046.1	6.2	B2/2500		
BH (60°-80°)	609.0	3.6	B2/1000		G2/1000
BVH (80°-90°)	136.5	0.8			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	62.5°	65°	75°	85°
0°	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3
2.5°	5105.9	5102.7	5059.5	5031.1	4997.4	4919.5	4841.5	4783.6	4754.2	4641.5	4532.0
5°	5528.1	5515.4	5491.3	5460.7	5416.5	5318.5	5195.4	5089.0	5046.9	4846.8	4645.7
7.5°	5304.9	5324.9	5399.6	5483.9	5572.3	5578.7	5491.3	5364.9	5318.5	5051.1	4756.3
10°	4686.8	4678.4	4772.1	4936.4	5228.0	5516.6	5660.8	5598.7	5550.2	5244.9	4866.9
12.5°	4499.3	4497.3	4513.1	4555.2	4738.4	5134.3	5617.6	5752.4	5735.6	5450.2	4984.7
15°	4556.2	4558.4	4557.2	4562.6	4613.1	4801.5	5376.5	5804.0	5856.6	5653.4	5104.8
17.5°	4738.4	4731.0	4707.8	4682.6	4689.9	4757.3	5116.4	5715.5	5873.5	5834.5	5205.9
20°	5019.5	5019.5	4957.4	4886.8	4840.5	4855.2	5008.0	5563.9	5795.5	5988.3	5281.7
22.5°	5372.2	5377.6	5285.9	5157.5	5052.1	5012.2	5070.1	5451.2	5700.8	6130.4	5349.1
25°	5810.4	5809.2	5675.5	5491.3	5324.9	5229.1	5228.0	5456.5	5671.3	6296.8	5419.7
27.5°	6352.6	6303.1	6147.2	5885.0	5650.3	5503.9	5437.6	5589.2	5733.4	6501.1	5514.4
30°	6964.4	6913.8	6709.5	6372.6	6054.6	5840.8	5731.4	5818.7	5923.0	6761.2	5657.6
32.5°	7569.8	7581.4	7341.3	6961.2	6552.6	6251.5	6089.3	6143.0	6215.8	7079.1	5851.4
35°	8456.4	8455.4	8141.6	7666.7	7181.3	6764.3	6559.0	6587.4	6653.8	7527.7	6123.1
37.5°	9117.7	9107.1	8905.0	8484.9	7938.4	7438.2	7141.2	7145.5	7202.4	8091.0	6481.0
40°	9185.1	9183.0	9181.9	9122.0	8748.1	8276.4	7904.6	7827.8	7850.9	8689.1	6861.1
42.5°	8670.2	8747.0	8968.2	9307.2	9411.5	9164.0	8812.3	8640.7	8590.1	9375.7	7263.5
45°	7936.3	7975.2	8362.7	9125.0	9745.2	9998.0	9733.7	9371.5	9285.1	10043.2	7590.9
47.5°	7595.1	7578.2	7802.6	8633.3	9712.6	10661.4	10680.3	10086.4	9940.1	10619.3	7870.0
50°	6863.3	6841.2	7124.4	7910.0	9356.7	10991.0	11652.2	10865.7	10595.0	11166.8	8122.6
52.5°	5405.0	5383.9	5764.0	6775.9	8560.7	10867.7	12471.4	11821.7	11360.6	11694.4	8358.5
55°	3516.9	3519.1	3881.3	4924.8	6927.5	10149.6	12855.7	12926.3	12409.3	12221.9	8549.1
57.5°	1936.4	1918.5	2176.5	2817.7	4765.7	8518.5	12535.6	13722.4	13452.8	12674.7	8687.0
58°	1721.6	1700.6	1899.5	2452.4	4273.0	8058.4	12374.5	13772.9	13586.5	12749.4	8707.1
60°	1226.7	1190.9	1160.3	1382.5	2461.8	5810.4	11300.5	13445.5	13625.5	12898.9	8688.1
62.5°	1034.0	993.0	883.4	875.0	1159.3	2842.0	8936.6	11808.0	12312.4	12554.6	8382.8
65°	960.3	919.2	775.0	723.4	786.5	1226.7	5526.0	9117.7	9791.6	11357.4	7614.0
67.5°	907.7	859.2	704.4	637.1	649.7	734.0	2345.0	5963.0	6744.3	8856.6	6108.3
70°	860.3	806.6	648.7	570.7	560.2	558.1	916.1	3113.7	3866.5	5795.5	4091.9
72.5°	806.6	753.9	599.1	516.0	492.8	452.8	550.7	1286.8	1763.8	2840.9	1875.4
75°	728.6	685.5	544.4	470.7	430.7	367.4	406.4	617.0	760.3	1087.7	870.8
77.5°	641.3	606.5	488.6	432.8	379.1	300.1	310.7	418.1	469.6	612.8	504.4
80°	453.8	466.5	426.5	381.2	333.8	242.2	239.1	306.4	337.0	411.7	339.1
82.5°	312.7	322.2	347.5	301.2	269.5	188.5	175.8	212.7	228.5	248.5	164.3
85°	223.2	216.9	241.1	215.8	197.9	120.0	112.6	134.8	144.2	151.6	79.0
87.5°	135.8	134.8	139.0	111.6	103.2	61.1	55.9	64.2	68.4	66.3	38.0
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°	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3	4498.3
2.5°	4491.0	4439.3	4326.7	4236.1	4138.1	4063.5	3988.7	3946.5	3900.2	3873.9	3870.7
5°	4540.5	4435.1	4195.0	3971.8	3742.3	3535.9	3333.7	3184.2	3062.0	2992.5	2988.3
7.5°	4595.2	4429.9	4059.2	3672.8	3264.2	2857.8	2498.7	2245.0	2081.7	2005.9	2000.7
10°	4637.3	4407.8	3893.9	3292.7	2645.0	2108.1	1781.7	1632.1	1582.6	1570.0	1567.9
12.5°	4687.9	4391.9	3685.4	2805.1	2021.8	1604.7	1505.8	1496.3	1506.8	1513.1	1514.2
15°	4735.2	4361.5	3404.3	2264.9	1582.6	1434.2	1436.2	1456.3	1477.3	1486.8	1487.9
17.5°	4757.3	4286.7	3034.7	1784.7	1384.7	1357.3	1381.5	1407.8	1426.8	1434.2	1434.2
20°	4757.3	4166.6	2606.1	1445.7	1281.5	1286.8	1316.2	1336.2	1340.5	1334.1	1331.0
22.5°	4737.3	4018.2	2189.1	1261.5	1197.3	1217.2	1240.4	1226.7	1177.2	1139.4	1132.0
25°	4719.4	3842.3	1787.9	1148.8	1123.5	1149.8	1140.4	1046.7	970.9	931.9	925.6
27.5°	4689.9	3629.6	1453.1	1056.1	1051.9	1073.0	979.3	888.7	850.8	829.7	825.5
30°	4682.6	3399.0	1216.2	974.0	981.4	951.9	844.4	815.0	806.6	795.0	789.7
32.5°	4706.8	3168.4	1067.8	906.6	914.0	817.1	776.0	780.2	779.2	764.5	759.2
35°	4773.1	2944.2	972.9	845.6	824.5	731.8	737.0	749.7	749.7	731.8	725.5
37.5°	4889.0	2735.7	912.9	793.9	721.3	687.6	701.2	718.1	718.1	705.5	700.2
40°	5012.2	2532.4	867.7	752.9	656.0	657.0	670.7	683.3	688.7	690.8	686.5
42.5°	5123.8	2321.8	819.2	708.7	626.6	633.9	640.2	649.7	671.8	686.5	684.5
45°	5189.0	2110.1	766.6	653.9	606.5	609.7	607.5	624.4	650.7	672.9	672.9
47.5°	5249.1	1936.4	723.4	599.1	586.5	586.5	580.2	597.0	621.2	647.6	649.7
50°	5305.9	1823.7	692.8	557.0	561.2	558.1	556.0	571.7	604.4	636.0	641.3
52.5°	5363.8	1785.9	665.4	526.5	534.9	530.7	532.9	555.0	591.8	624.4	629.7
55°	5445.0	1810.1	637.1	505.4	509.6	508.6	517.0	542.3	574.9	607.5	609.7
57.5°	5545.0	1898.5	612.8	489.6	485.4	491.7	505.4	529.7	561.2	600.2	603.3
58°	5565.0	1919.6	608.7	485.4	480.2	489.6	503.3	526.5	559.1	600.2	603.3
60°	5595.5	1994.3	598.1	477.0	462.3	479.2	495.9	519.1	555.0	605.5	611.8
62.5°	5448.1	2009.1	594.9	467.5	443.3	464.3	484.4	510.7	550.7	623.4	637.1
65°	4937.4	1857.5	572.9	451.7	427.5	452.8	473.8	504.4	563.3	677.1	683.3
67.5°	3963.4	1542.6	519.1	427.5	409.6	439.1	465.4	504.4	568.6	685.5	689.7
70°	2725.1	1159.3	451.7	401.2	388.5	422.3	462.3	516.0	550.7	648.7	636.0
72.5°	1423.6	806.6	395.9	370.6	363.2	407.5	492.8	504.4	529.7	605.5	592.8
75°	717.1	548.6	348.5	335.9	334.8	402.2	551.8	485.4	507.5	569.7	597.0
77.5°	423.3	429.6	310.7	303.3	308.5	392.7	552.8	466.5	482.2	524.4	553.8
80°	289.6	354.9	281.1	279.1	283.3	361.2	509.6	443.3	452.8	495.9	527.5
82.5°	163.2	195.9	246.4	260.0	258.0	295.8	440.2	403.2	414.9	586.5	620.2
85°	79.0	117.9	206.4	243.3	220.0	196.9	358.0	358.0	361.2	420.1	425.4
87.5°	29.5	52.7	139.0	192.7	153.7	117.9	243.3	253.8	282.2	290.6	297.0
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)