

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: P196022

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

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P196022  
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-02-D-UNV-AFL  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(2) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12766.4 lumens  
Efficiency: N/A  
Efficacy: 113.0 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type II - Short - Full Cutoff  
BUG Rating: B2 - U0 - G2

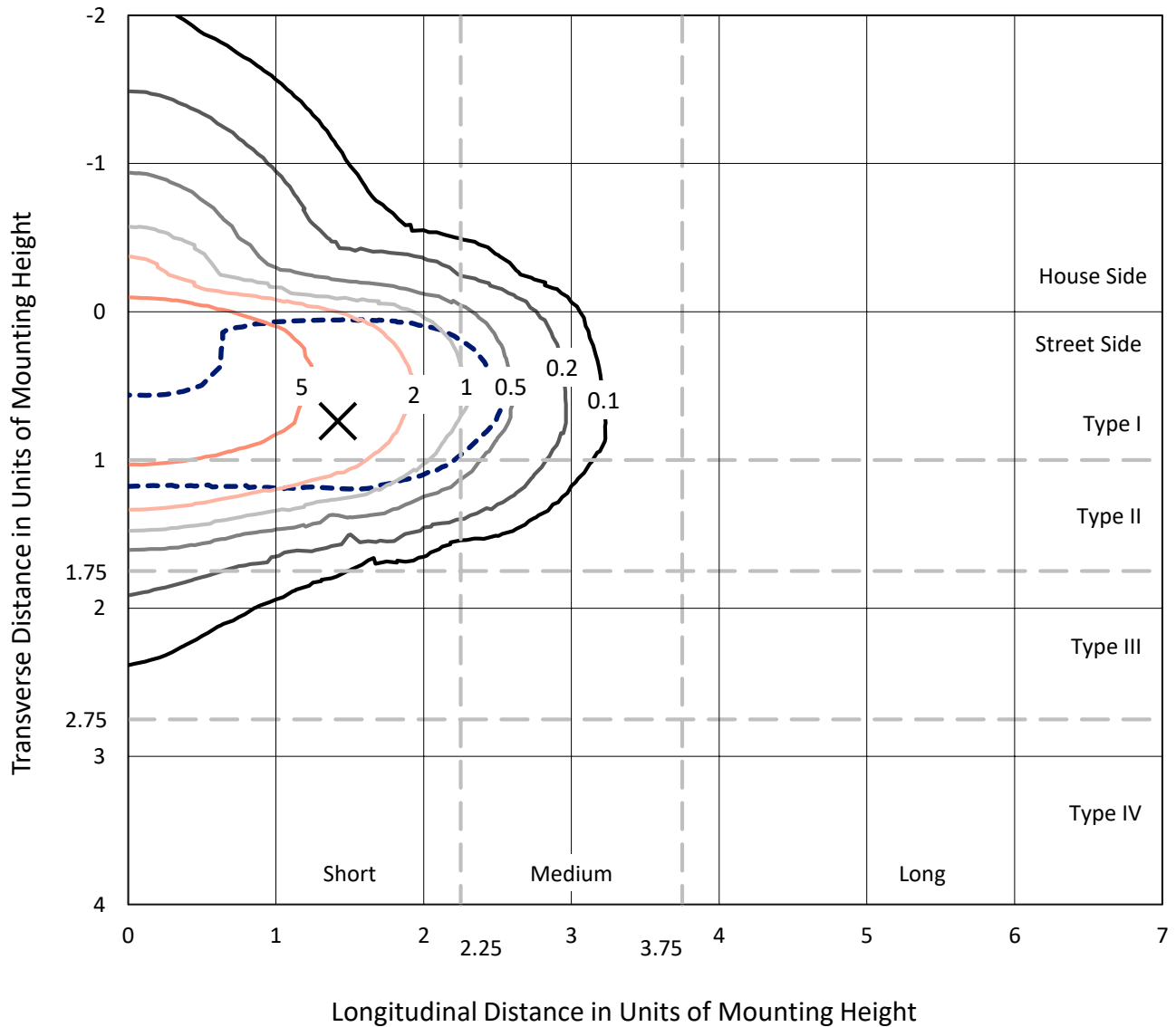
Input Watts (W): 113  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

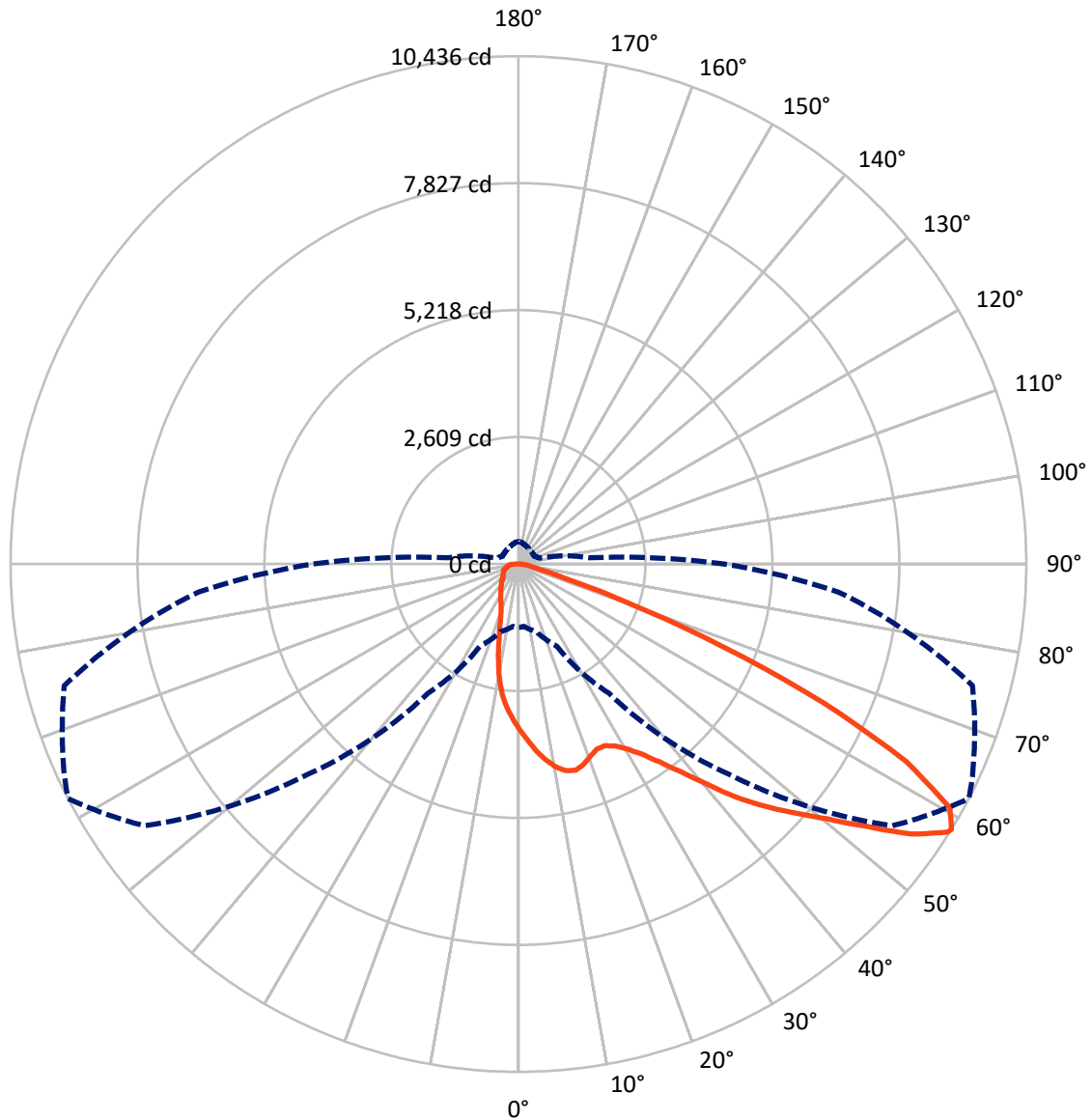


Based on 20 foot mounting height. Maximum calculated value = 10 fc  
 Type II - Short - Full Cutoff

REPORT NUMBER: P196022

CATALOG NUMBER: NAV-AF-02-D-UNV-AFL

### Luminous Intensity Polar Plot



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

REPORT NUMBER: P196022

CATALOG NUMBER: NAV-AF-02-D-UNV-AFL

**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1960.1	0.0	1960.1
	% Fixture	15.4	0.0	15.4
<b>Street Side</b>	Lumens	10806.3	0.0	10806.3
	% Fixture	84.6	0.0	84.6
<b>Total</b>	Lumens	12766.4	0.0	12766.4
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	304.7	2.4
10°-20°	768.9	6.0
20°-30°	1246.1	9.8
30°-40°	1989.5	15.6
40°-50°	2893.8	22.7
50°-60°	3028.1	23.7
60°-70°	1846.0	14.5
70°-80°	516.3	4.0
80°-90°	173.1	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°	12766.4	100.0
0°-180°	12766.4	100.0



REPORT NUMBER: P196022

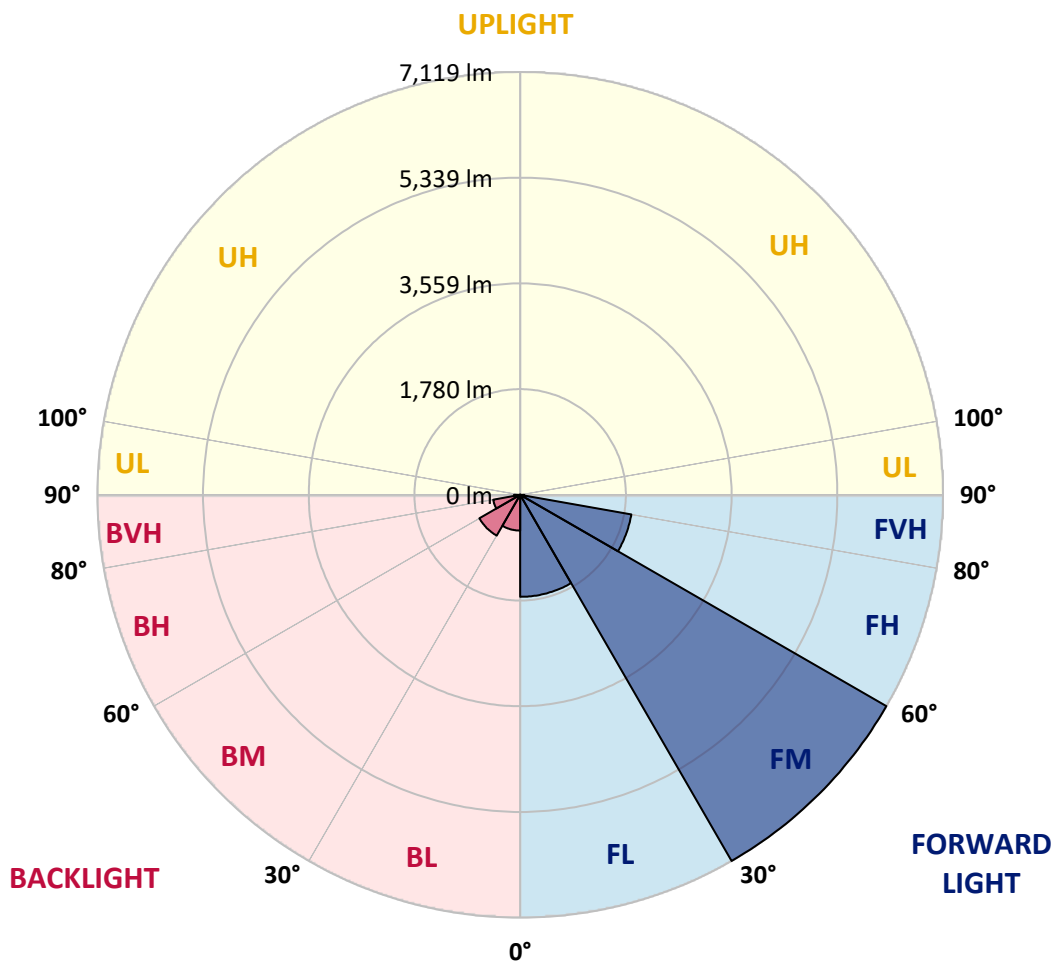
CATALOG NUMBER: NAV-AF-02-D-UNV-AFL

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1717.1	13.5			
FM	(30°-60°)	7118.7	55.8			
FH	(60°-80°)	1900.8	14.9			G2/5000
FVH	(80°-90°)	69.6	0.5			G1/100
BL	(0°-30°)	602.5	4.7	B2/1000		
BM	(30°-60°)	792.7	6.2	B1/1000		
BH	(60°-80°)	461.5	3.6	B1/500		G1/500
BVH	(80°-90°)	103.4	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





REPORT NUMBER: P196022

CATALOG NUMBER: NAV-AF-02-D-UNV-AFL

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	62.5°	65°	75°	85°
0°	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6
2.5°	3868.9	3866.5	3833.8	3812.2	3786.8	3727.7	3668.7	3624.8	3602.4	3517.1	3434.0
5°	4188.9	4179.3	4161.0	4137.8	4104.3	4030.1	3936.7	3856.1	3824.2	3672.7	3520.3
7.5°	4019.7	4034.9	4091.5	4155.3	4222.4	4227.1	4161.0	4065.2	4030.1	3827.5	3604.1
10°	3551.4	3545.0	3616.0	3740.5	3961.5	4180.1	4289.4	4242.4	4205.7	3974.3	3687.8
12.5°	3409.4	3407.8	3419.7	3451.6	3590.5	3890.5	4256.7	4358.8	4346.1	4129.9	3777.1
15°	3452.5	3454.0	3453.3	3457.3	3495.5	3638.3	4074.0	4398.0	4437.9	4283.8	3868.1
17.5°	3590.5	3584.9	3567.3	3548.2	3553.7	3604.9	3876.9	4330.9	4450.6	4421.1	3944.7
20°	3803.5	3803.5	3756.4	3703.0	3667.9	3679.0	3794.7	4216.0	4391.5	4537.6	4002.2
22.5°	4070.8	4074.8	4005.4	3908.0	3828.2	3797.9	3841.8	4130.7	4319.7	4645.2	4053.2
25°	4402.7	4402.0	4300.6	4161.0	4034.9	3962.3	3961.5	4134.7	4297.4	4771.3	4106.7
27.5°	4813.6	4776.2	4658.0	4459.3	4281.5	4170.6	4120.2	4235.1	4344.5	4926.1	4178.5
30°	5277.2	5238.9	5084.1	4828.7	4587.8	4425.9	4342.8	4409.1	4488.1	5123.2	4287.0
32.5°	5736.0	5744.8	5562.8	5274.8	4965.2	4737.0	4614.1	4654.8	4709.9	5364.1	4433.9
35°	6407.8	6406.9	6169.2	5809.3	5441.6	5125.6	4970.0	4991.6	5041.8	5704.1	4639.7
37.5°	6908.9	6900.9	6747.7	6429.3	6015.3	5636.3	5411.2	5414.4	5457.5	6131.0	4911.0
40°	6960.0	6958.3	6957.5	6912.1	6628.8	6271.3	5989.7	5931.5	5949.0	6584.1	5199.0
42.5°	6569.8	6628.0	6795.6	7052.5	7131.5	6944.0	6677.5	6547.4	6509.1	7104.3	5503.8
45°	6013.6	6043.2	6336.8	6914.4	7384.4	7575.9	7375.6	7101.1	7035.8	7610.2	5752.0
47.5°	5755.1	5742.3	5912.3	6541.9	7359.6	8078.5	8092.9	7642.9	7532.0	8046.6	5963.4
50°	5200.6	5183.8	5398.5	5993.7	7090.0	8328.3	8829.4	8233.3	8028.3	8461.5	6154.9
52.5°	4095.5	4079.5	4367.6	5134.4	6486.7	8235.0	9450.1	8957.8	8608.3	8861.3	6333.6
55°	2664.9	2666.5	2941.0	3731.7	5249.3	7690.7	9741.4	9794.8	9403.1	9261.0	6478.0
57.5°	1467.3	1453.7	1649.2	2135.1	3611.2	6454.8	9498.8	10398.0	10193.7	9604.1	6582.5
58°	1304.6	1288.6	1439.4	1858.3	3237.8	6106.2	9376.7	10436.2	10295.1	9660.7	6597.7
60°	929.6	902.4	879.2	1047.6	1865.5	4402.7	8562.9	10188.2	10324.6	9774.1	6583.3
62.5°	783.5	752.4	669.4	663.1	878.5	2153.5	6771.6	8947.4	9329.6	9513.1	6351.9
65°	727.6	696.5	587.3	548.1	596.0	929.6	4187.2	6908.9	7419.5	8606.0	5769.4
67.5°	687.7	651.1	533.8	482.7	492.2	556.1	1776.9	4518.4	5110.5	6711.0	4628.5
70°	651.8	611.2	491.5	432.4	424.4	422.9	694.2	2359.3	2929.8	4391.5	3100.6
72.5°	611.2	571.3	454.0	391.0	373.4	343.1	417.3	975.0	1336.5	2152.7	1421.0
75°	552.1	519.5	412.6	356.7	326.3	278.4	308.0	467.6	576.0	824.2	659.8
77.5°	485.9	459.6	370.2	328.0	287.2	227.4	235.4	316.8	355.9	464.3	382.2
80°	343.9	353.4	323.2	288.9	253.0	183.5	181.2	232.2	255.3	312.0	257.0
82.5°	237.0	244.2	263.3	228.2	204.3	142.8	133.3	161.2	173.2	188.3	124.5
85°	169.2	164.4	182.7	163.6	150.0	90.9	85.4	102.1	109.4	114.9	59.8
87.5°	102.9	102.1	105.4	84.6	78.2	46.2	42.2	48.7	51.9	50.2	28.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P196022

CATALOG NUMBER: NAV-AF-02-D-UNV-AFL

**CANDELA DISTRIBUTION (continued):**

	90°	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6	3408.6
2.5°	3402.9	3363.9	3278.5	3209.9	3135.7	3079.0	3022.4	2990.5	2955.3	2935.4	2933.0
5°	3440.5	3360.7	3178.7	3009.6	2835.7	2679.3	2526.1	2412.8	2320.3	2267.6	2264.4
7.5°	3481.9	3356.7	3075.8	2783.0	2473.4	2165.5	1893.4	1701.1	1577.4	1520.0	1516.0
10°	3513.8	3339.9	2950.6	2495.0	2004.3	1597.3	1350.0	1236.7	1199.2	1189.7	1188.1
12.5°	3552.2	3328.0	2792.6	2125.6	1532.0	1216.0	1141.0	1133.8	1141.8	1146.5	1147.3
15°	3588.1	3304.8	2579.6	1716.2	1199.2	1086.7	1088.3	1103.5	1119.4	1126.6	1127.4
17.5°	3604.9	3248.2	2299.5	1352.4	1049.2	1028.5	1046.8	1066.7	1081.2	1086.7	1086.7
20°	3604.9	3157.2	1974.8	1095.5	971.0	975.0	997.4	1012.5	1015.7	1010.9	1008.5
22.5°	3589.6	3044.7	1658.8	955.8	907.2	922.4	939.9	929.6	892.0	863.3	857.7
25°	3576.1	2911.5	1354.8	870.5	851.3	871.2	864.1	793.1	735.6	706.1	701.3
27.5°	3553.7	2750.3	1101.1	800.3	797.1	813.0	742.0	673.4	644.7	628.7	625.5
30°	3548.2	2575.6	921.6	738.1	743.6	721.3	639.9	617.6	611.2	602.4	598.4
32.5°	3566.5	2400.9	809.1	687.0	692.5	619.2	588.0	591.3	590.4	579.3	575.3
35°	3616.8	2230.9	737.2	640.7	624.7	554.5	558.5	568.0	568.0	554.5	549.7
37.5°	3704.6	2072.9	691.7	601.6	546.6	521.0	531.4	544.1	544.1	534.6	530.6
40°	3797.9	1919.0	657.5	570.5	497.1	497.9	508.2	517.8	521.8	523.4	520.2
42.5°	3882.5	1759.4	620.7	536.9	474.8	480.3	485.1	492.2	509.0	520.2	518.6
45°	3931.9	1599.0	580.8	495.5	459.6	462.0	460.3	473.1	493.1	509.8	509.8
47.5°	3977.4	1467.3	548.1	454.0	444.4	444.4	439.7	452.3	470.8	490.7	492.2
50°	4020.5	1381.9	525.0	422.1	425.2	422.9	421.3	433.2	458.0	481.9	485.9
52.5°	4064.4	1353.2	504.2	399.0	405.3	402.1	403.8	420.4	448.4	473.1	477.1
55°	4125.9	1371.6	482.7	383.0	386.2	385.3	391.8	410.9	435.7	460.3	462.0
57.5°	4201.7	1438.6	464.3	371.0	367.9	372.7	383.0	401.3	425.2	454.8	457.2
58°	4216.8	1454.5	461.1	367.9	363.9	371.0	381.4	399.0	423.7	454.8	457.2
60°	4239.9	1511.2	453.2	361.4	350.3	363.0	375.8	393.3	420.4	458.8	463.6
62.5°	4128.2	1522.4	450.8	354.2	335.9	351.9	367.0	387.0	417.3	472.3	482.7
65°	3741.2	1407.5	434.0	342.3	324.0	343.1	359.1	382.2	426.9	513.0	517.8
67.5°	3003.2	1168.9	393.3	324.0	310.4	332.8	352.7	382.2	430.9	519.5	522.6
70°	2064.9	878.5	342.3	304.0	294.4	320.0	350.3	391.0	417.3	491.5	481.9
72.5°	1078.7	611.2	300.0	280.9	275.3	308.8	373.4	382.2	401.3	458.8	449.2
75°	543.4	415.7	264.1	254.5	253.7	304.8	418.1	367.9	384.6	431.7	452.3
77.5°	320.8	325.5	235.4	229.8	233.7	297.6	418.9	353.4	365.4	397.3	419.7
80°	219.4	268.9	213.1	211.4	214.6	273.6	386.2	335.9	343.1	375.8	399.8
82.5°	123.7	148.4	186.7	197.1	195.5	224.2	333.5	305.6	314.4	444.4	469.9
85°	59.8	89.4	156.4	184.3	166.7	149.2	271.3	271.3	273.6	318.3	322.3
87.5°	22.3	39.9	105.4	146.0	116.5	89.4	184.3	192.3	213.8	220.2	225.0
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)