

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: P196094

Luminaire Tested: **NAV-AF-02-D-UNV-SL2**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196094
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24257)
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-SL2
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II
SPILL LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12215 lumens
Efficiency: N/A
Efficacy: 108.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type II - Medium - Semi-Cutoff
BUG Rating: B2 - U0 - G3

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

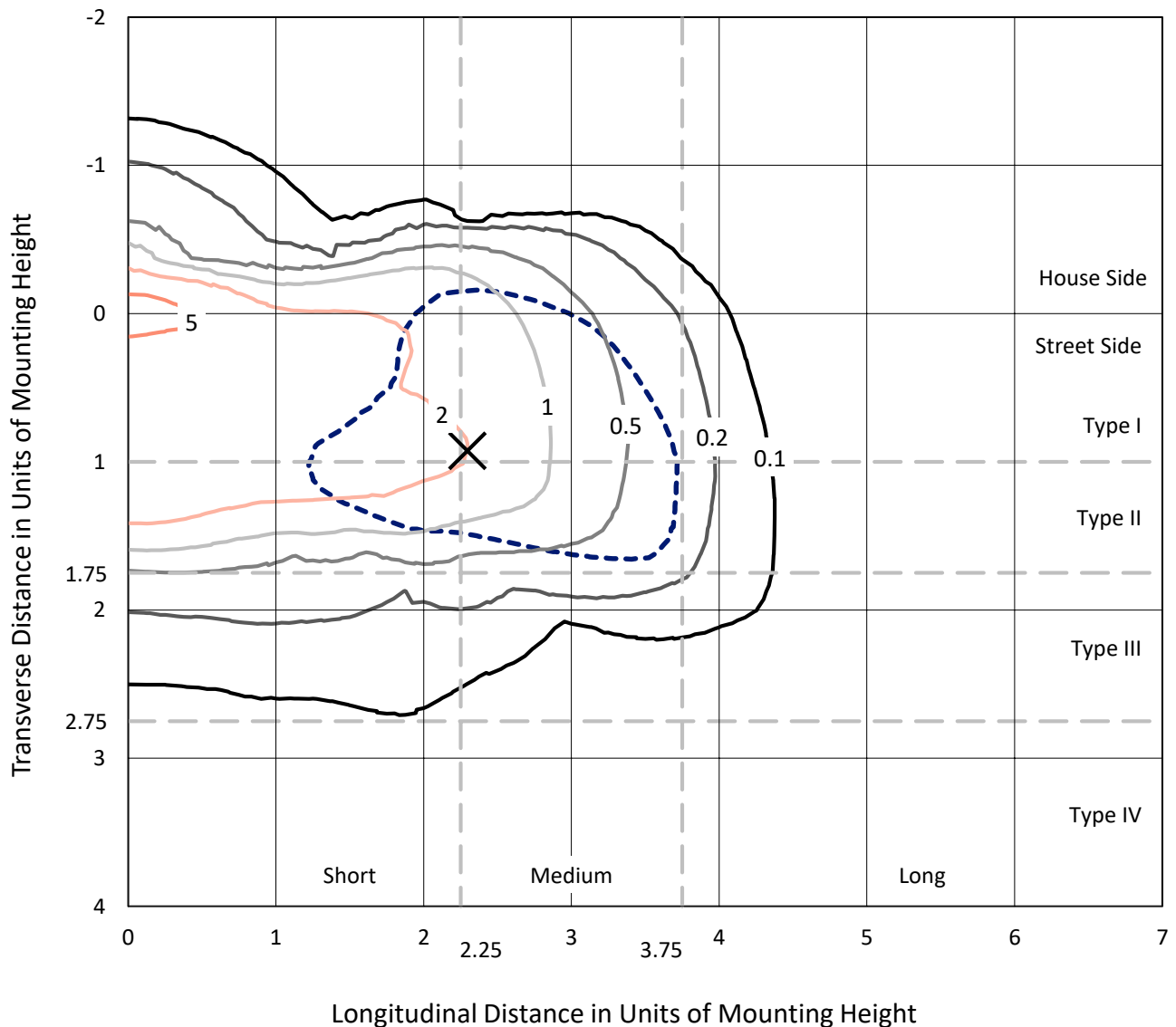


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Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

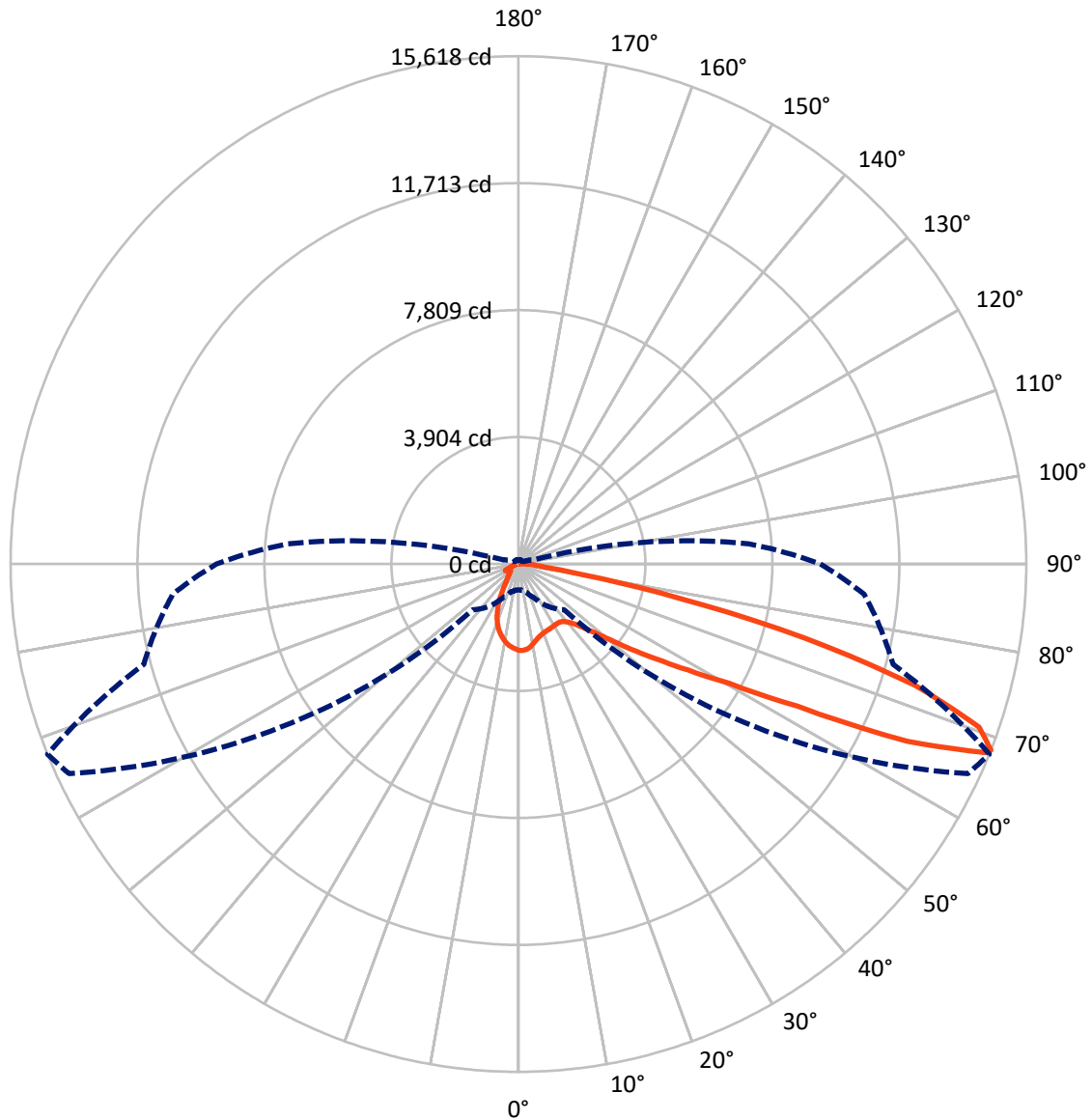


Based on 20 foot mounting height. Maximum calculated value = 6.6 fc
 Type II - Medium - Semi-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 68-Deg Lateral - - - Horizontal Cone Through 68-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1998.4	0.0	1998.4
	% Fixture	16.4	0.0	16.4
Street Side	Lumens	10216.6	0.0	10216.6
	% Fixture	83.6	0.0	83.6
Total	Lumens	12215.0	0.0	12215.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	227.7	1.9
10°-20°	528.2	4.3
20°-30°	714.4	5.8
30°-40°	1007.2	8.2
40°-50°	1656.3	13.6
50°-60°	2567.4	21.0
60°-70°	3328.8	27.3
70°-80°	1910.2	15.6
80°-90°	274.8	2.2
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°	12215.0	100.0
0°-180°	12215.0	100.0



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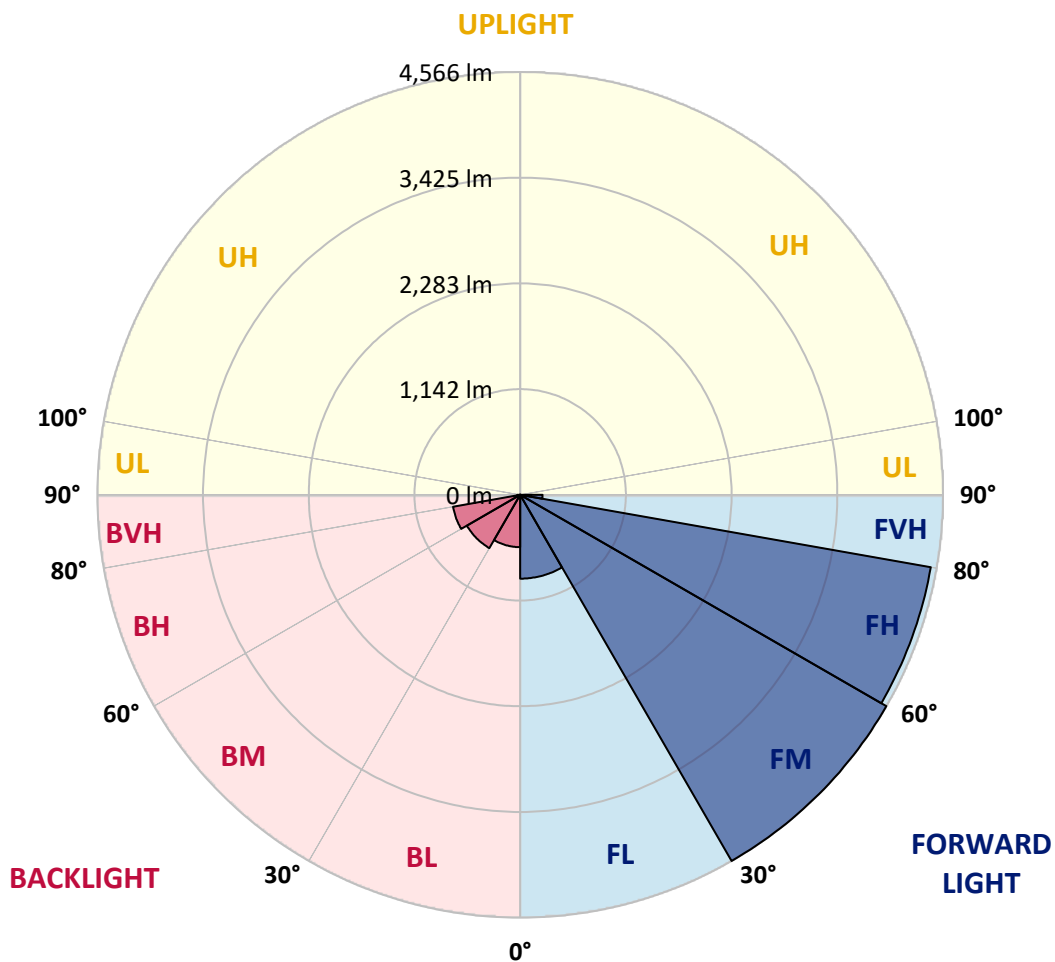
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	905.3	7.4			
FM (30°-60°)	4566.2	37.4			
FH (60°-80°)	4503.0	36.9			G2/5000
FVH (80°-90°)	242.1	2.0			G3/500
BL (0°-30°)	565.0	4.6	B2/1000		
BM (30°-60°)	664.7	5.4	B1/1000		
BH (60°-80°)	736.0	6.0	B2/1000		G2/1000
BVH (80°-90°)	32.8	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-G3

Type II Medium





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	68°	75°	85°
0°	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9
2.5°	2586.8	2607.6	2607.6	2622.7	2636.3	2647.5	2657.1	2657.1	2657.1	2650.7	2645.1
5°	2314.7	2342.7	2346.6	2385.0	2435.2	2496.7	2565.4	2626.0	2638.0	2660.3	2669.1
7.5°	2125.7	2134.5	2149.6	2175.9	2227.0	2302.8	2410.5	2546.2	2578.9	2649.1	2685.9
10°	1991.6	1998.8	2011.5	2037.9	2084.2	2152.8	2258.9	2435.2	2489.6	2614.0	2686.6
12.5°	1893.5	1899.1	1911.1	1935.0	1982.1	2043.4	2152.0	2335.5	2402.5	2578.9	2697.8
15°	1816.9	1826.5	1836.0	1859.2	1907.1	1966.1	2076.2	2262.9	2335.5	2550.9	2718.5
17.5°	1786.6	1791.4	1792.9	1804.9	1848.0	1907.8	2018.0	2211.8	2286.8	2528.6	2734.4
20°	1805.7	1806.5	1790.6	1782.6	1807.3	1862.4	1969.3	2173.6	2250.2	2508.7	2740.9
22.5°	1889.5	1889.5	1848.0	1812.9	1796.1	1830.5	1936.5	2147.2	2230.2	2493.5	2740.9
25°	2049.1	2041.9	1977.3	1907.8	1833.6	1819.3	1915.8	2130.5	2215.0	2485.6	2730.5
27.5°	2258.9	2252.5	2170.4	2067.4	1933.4	1843.3	1908.6	2116.9	2199.9	2473.6	2708.2
30°	2514.3	2508.7	2415.3	2280.5	2082.6	1919.1	1925.4	2107.3	2187.9	2453.6	2670.6
32.5°	2768.8	2765.6	2691.4	2553.4	2288.4	2047.4	1969.3	2105.7	2181.5	2429.7	2625.2
35°	3025.0	3025.0	2979.4	2862.9	2565.4	2240.6	2061.0	2135.2	2193.5	2416.9	2586.1
37.5°	3403.2	3388.0	3303.4	3182.9	2914.0	2491.1	2209.5	2197.5	2239.8	2438.4	2573.3
40°	3988.8	3944.9	3733.5	3530.8	3294.6	2811.9	2426.4	2318.0	2343.5	2511.9	2603.6
42.5°	4601.6	4532.2	4252.1	3928.2	3688.0	3207.7	2711.3	2513.5	2512.7	2653.9	2700.2
45°	5127.4	5091.5	4788.3	4377.4	4137.2	3652.9	3071.2	2803.9	2775.2	2874.1	2886.1
47.5°	5433.1	5409.2	5226.4	4853.0	4670.3	4178.8	3527.6	3206.8	3152.6	3211.7	3193.3
50°	5348.5	5371.6	5318.9	5128.3	5243.1	4917.6	4109.3	3759.0	3656.1	3715.2	3670.4
52.5°	4903.2	4965.5	5012.6	5049.3	5572.7	5906.2	4840.2	4448.4	4363.1	4352.7	4309.6
55°	4101.3	4200.2	4348.7	4618.4	5484.1	6700.1	6116.9	5282.2	5157.8	5092.4	5109.1
57.5°	2791.1	2941.2	3261.2	3774.2	5023.7	7038.5	8004.8	6359.5	6148.9	5915.8	5970.0
60°	1537.6	1662.9	2043.4	2560.5	3972.8	6988.2	9678.0	8110.1	7447.1	6829.4	6941.1
62.5°	995.0	1022.1	1305.4	1749.0	2438.4	6169.5	10607.6	11036.1	9631.0	8034.3	8191.5
65°	799.5	818.7	957.5	1410.8	1698.8	3968.8	10649.1	14071.4	13145.0	9671.7	9676.4
67.5°	781.1	789.9	870.5	1186.5	1593.5	2160.8	9204.8	15268.3	15483.0	11604.3	10669.9
68°	792.4	802.7	884.1	1149.8	1592.6	1991.6	8507.5	15249.9	15617.8	11927.4	10669.9
70°	699.0	711.8	901.6	1189.7	1524.8	1712.3	5825.6	14440.1	15032.1	12670.3	10124.0
72.5°	365.5	355.1	446.0	939.2	1716.3	1784.1	3077.5	12063.9	12754.9	11734.3	8746.8
75°	284.9	259.3	249.7	371.0	1509.7	1850.4	1787.4	8574.5	9096.4	8458.8	5846.4
77.5°	268.1	237.0	218.6	219.4	664.7	1925.4	1445.8	5046.1	5046.1	4035.1	1865.6
80°	215.4	186.7	174.7	199.5	320.8	1774.6	1508.9	2299.6	1961.3	1042.9	513.8
82.5°	142.0	126.8	127.7	161.9	243.4	1184.9	1747.4	1135.5	852.9	462.0	302.4
85°	90.1	77.4	86.1	113.3	181.9	528.3	1729.9	789.1	565.0	259.3	150.8
87.5°	45.5	35.1	43.1	59.0	110.9	151.6	1424.3	704.6	418.9	107.7	82.1
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°	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9	2657.9
2.5°	2645.1	2627.6	2618.8	2604.4	2586.8	2569.3	2557.4	2551.8	2548.6	2550.2	2549.4
5°	2664.3	2641.2	2603.6	2550.2	2495.1	2436.9	2392.2	2357.9	2336.3	2330.0	2328.3
7.5°	2678.6	2645.1	2574.9	2477.6	2383.4	2281.3	2194.3	2124.9	2077.8	2056.2	2055.4
10°	2676.2	2633.2	2522.3	2378.6	2240.6	2090.6	1954.1	1837.6	1753.0	1712.3	1710.8
12.5°	2678.6	2619.6	2457.6	2262.9	2065.0	1850.4	1647.7	1466.6	1340.5	1280.6	1278.3
15°	2688.2	2605.3	2391.4	2133.7	1859.9	1556.7	1267.1	1039.7	924.7	885.7	885.7
17.5°	2687.4	2581.3	2314.7	1983.6	1616.6	1210.5	864.9	724.6	713.3	749.2	754.8
20°	2671.4	2543.0	2215.8	1805.7	1331.0	837.8	586.5	566.5	655.9	754.8	766.0
22.5°	2646.7	2493.5	2101.8	1599.1	998.2	545.7	452.5	482.7	604.1	726.9	744.5
25°	2612.4	2433.7	1970.9	1358.9	663.9	392.6	377.5	414.9	500.3	582.5	595.3
27.5°	2562.2	2357.9	1828.0	1098.8	423.7	323.2	328.8	355.1	391.8	426.9	434.0
30°	2499.1	2269.3	1672.4	810.7	321.5	288.9	298.4	314.4	330.3	352.7	357.5
32.5°	2435.2	2179.1	1510.5	557.0	280.9	270.5	280.1	288.9	302.4	317.5	320.8
35°	2377.8	2095.3	1343.7	388.6	263.3	258.5	263.3	268.9	282.4	297.6	299.2
37.5°	2336.3	2026.8	1169.7	307.2	253.0	248.2	250.5	253.0	268.9	291.2	293.6
40°	2330.7	1981.3	993.4	276.1	245.0	238.6	237.0	238.6	259.3	284.9	287.2
42.5°	2385.0	1983.6	821.0	263.3	238.6	231.4	225.0	228.2	246.5	266.5	268.1
45°	2513.5	2039.5	671.9	257.7	233.0	227.4	217.8	219.4	228.2	238.6	240.2
47.5°	2740.1	2161.6	557.7	254.5	228.2	223.4	211.4	206.6	207.5	213.1	213.1
50°	3102.3	2365.9	488.4	251.3	224.2	215.4	201.8	192.3	189.9	193.1	193.8
52.5°	3642.5	2716.1	454.8	245.0	217.1	205.1	189.9	180.3	176.4	179.5	179.5
55°	4372.6	3275.5	438.8	236.2	208.3	192.3	178.7	170.7	167.6	169.9	169.9
57.5°	5204.9	4002.4	466.0	224.2	197.1	178.7	169.2	163.6	161.2	163.6	164.4
60°	6193.5	4953.5	652.7	209.1	185.2	166.7	161.2	157.9	156.4	158.8	158.8
62.5°	7507.6	6219.0	1010.2	197.1	172.4	155.6	154.0	152.4	150.8	153.2	153.2
65°	8926.4	7370.5	1039.7	189.9	161.2	146.0	146.8	146.8	145.3	147.6	147.6
67.5°	9378.0	7270.7	580.9	181.2	147.6	136.5	139.6	139.6	138.8	141.3	140.5
68°	9282.3	7112.7	505.8	178.7	145.3	134.0	137.3	138.0	137.3	139.6	138.8
70°	8569.0	6244.6	332.8	165.2	134.8	126.0	130.8	131.7	130.8	134.0	133.3
72.5°	7073.6	4683.8	245.7	144.4	122.0	115.7	120.5	121.3	122.0	125.3	124.5
75°	4492.3	2586.8	193.8	122.9	109.4	103.7	108.5	110.9	112.5	117.3	114.9
77.5°	1230.4	785.1	157.2	104.5	94.1	91.8	94.9	98.1	99.7	105.4	101.4
80°	430.9	347.1	130.8	88.6	78.2	77.4	80.6	83.8	85.4	90.1	85.4
82.5°	261.7	226.6	104.5	69.5	61.5	60.7	64.7	67.8	69.5	69.5	66.2
85°	136.5	119.7	76.6	48.7	42.2	39.9	47.1	51.0	51.9	51.0	48.7
87.5°	76.6	67.8	40.7	23.1	19.1	19.9	24.8	30.3	32.7	31.9	30.3
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)