

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: P196196

Luminaire Tested: **NAV-AF-02-D-UNV-SL4-1200**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P196196
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-02-D-UNV-SL4-1200
Description: NAVION ROADWAY AND AREA LUMINAIRE
(2) 70 CRI, 4000K, 1200mA 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: 13039.5 lumens
Efficiency: N/A
Efficacy: 101.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U0 - G3

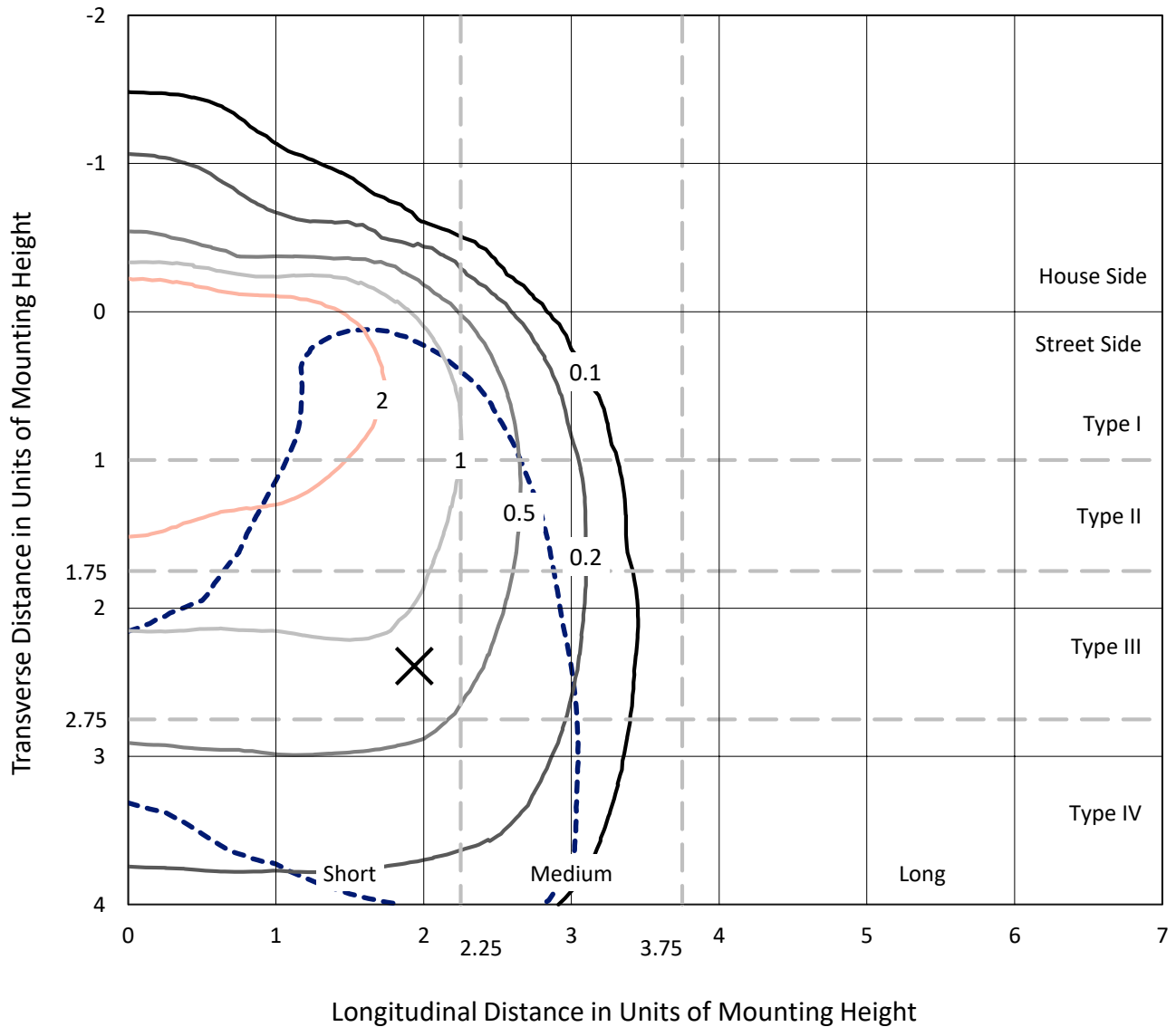
Input Watts (W): 129
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Iso-Footcandle Lines of Horizontal Illumination

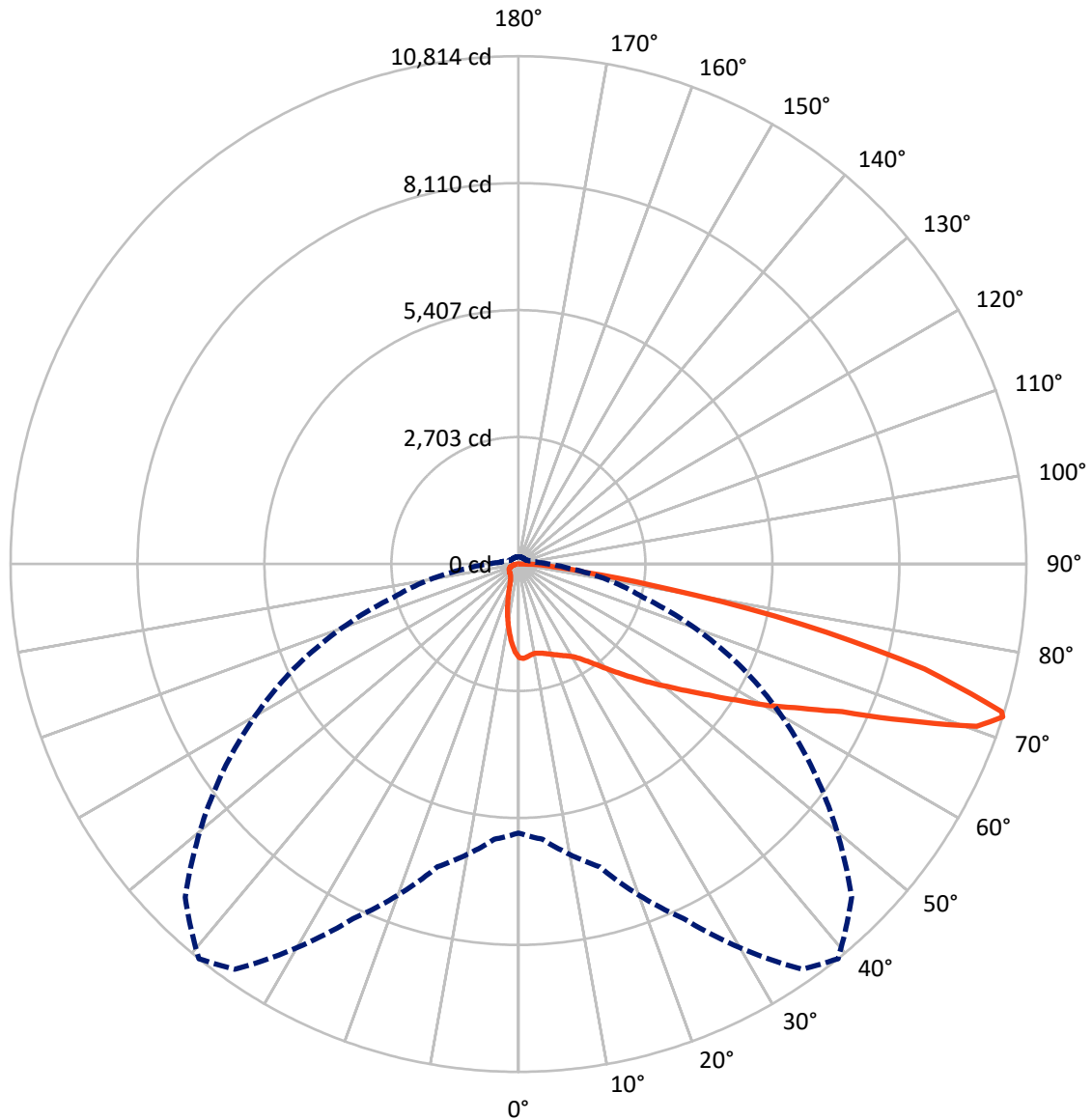
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 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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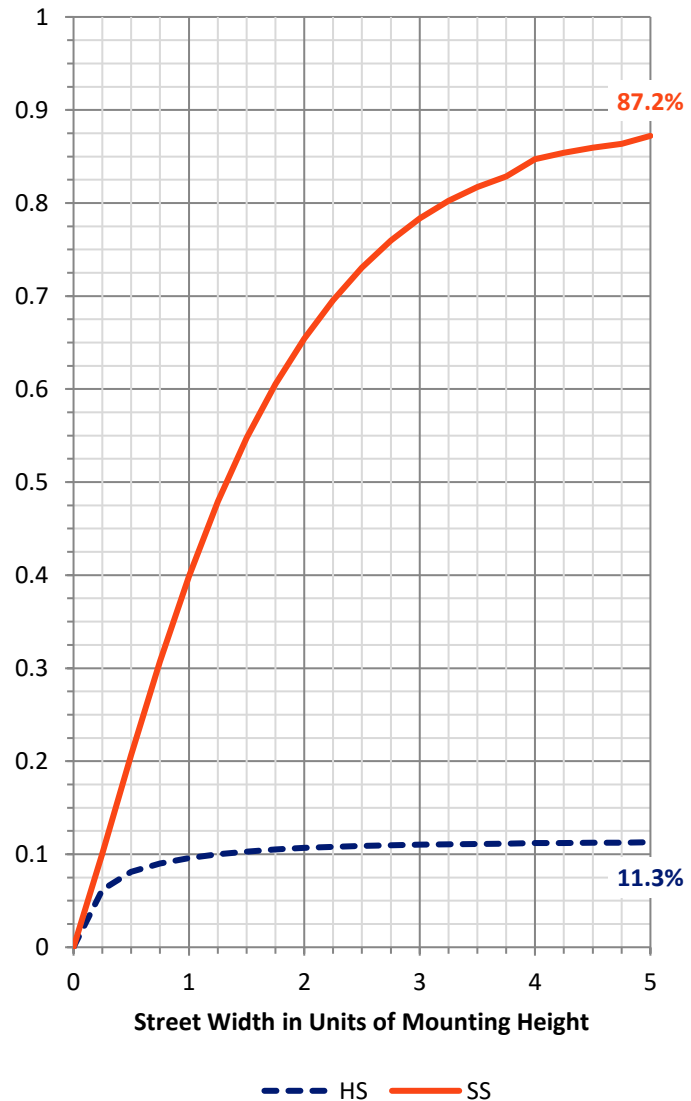
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1495.2	0.0	1495.2
	% Fixture	11.5	0.0	11.5
Street Side	Lumens	11544.4	0.0	11544.4
	% Fixture	88.5	0.0	88.5
Total	Lumens	13039.5	0.0	13039.5
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.1	1.3
10°-20°	430.0	3.3
20°-30°	670.1	5.1
30°-40°	1031.8	7.9
40°-50°	1682.0	12.9
50°-60°	2613.7	20.0
60°-70°	3498.4	26.8
70°-80°	2515.8	19.3
80°-90°	426.5	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°	13039.5	100.0
0°-180°	13039.5	100.0



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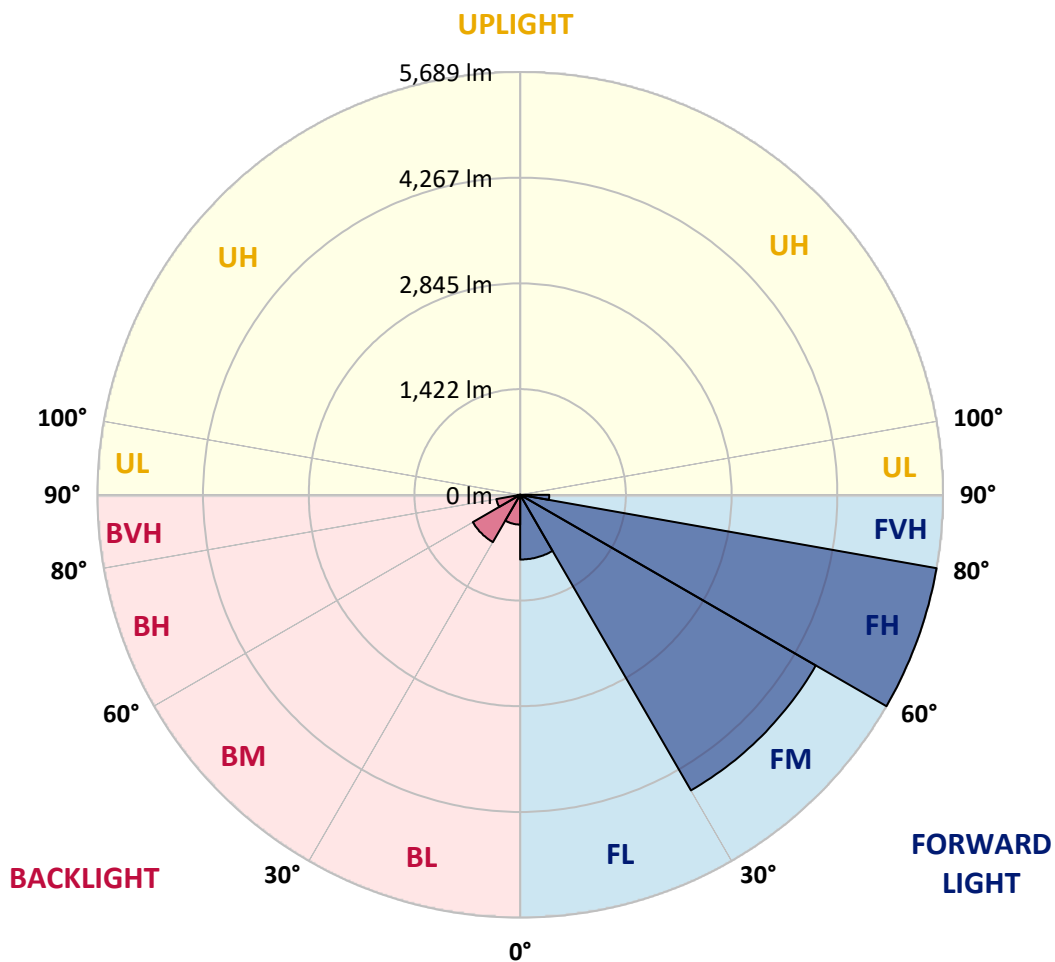
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	871.0	6.7			
FM	(30°-60°)	4592.8	35.2			
FH	(60°-80°)	5689.4	43.6			G3/7500
FVH	(80°-90°)	391.2	3.0			G3/500
BL	(0°-30°)	400.3	3.1	B1/500		
BM	(30°-60°)	734.8	5.6	B1/1000		
BH	(60°-80°)	324.8	2.5	B1/500		G1/500
BVH	(80°-90°)	35.3	0.3			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G3

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	39°	45°	55°	65°	75°	85°
0°	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4
2.5°	2034.2	2035.2	2032.5	2024.6	2017.7	2014.1	2008.1	1997.5	1983.5	1973.9	1966.0
5°	2015.0	2017.7	2015.9	2002.7	1990.5	1983.5	1973.9	1959.0	1940.6	1932.8	1914.4
7.5°	2000.2	2001.9	1996.6	1981.8	1958.1	1949.3	1931.8	1912.6	1895.9	1884.6	1862.7
10°	1989.6	1991.4	1987.0	1972.1	1945.9	1935.3	1914.4	1893.4	1871.5	1857.5	1832.9
12.5°	1974.7	1978.3	1978.3	1971.2	1953.7	1946.8	1925.7	1903.0	1882.8	1867.9	1837.3
15°	1972.1	1976.4	1984.4	1983.5	1978.3	1973.0	1956.4	1933.6	1916.1	1898.6	1861.0
17.5°	1994.0	2003.7	2019.4	2024.6	2021.1	2009.8	1990.5	1969.5	1950.3	1933.6	1887.2
20°	2049.2	2054.4	2078.0	2088.6	2071.1	2054.4	2029.0	2001.9	1984.4	1971.2	1911.7
22.5°	2132.3	2139.3	2158.5	2159.4	2122.6	2102.6	2070.1	2036.9	2020.2	2015.0	1944.9
25°	2265.3	2263.6	2268.8	2247.0	2180.4	2156.8	2117.4	2078.9	2067.5	2078.0	1994.0
27.5°	2424.7	2420.3	2403.6	2346.8	2246.1	2215.5	2168.1	2134.1	2134.1	2158.5	2060.5
30°	2608.5	2604.1	2549.8	2454.5	2324.0	2289.0	2239.1	2203.2	2221.5	2268.8	2150.7
32.5°	2802.8	2787.0	2710.9	2583.1	2435.1	2396.7	2348.5	2311.8	2346.8	2427.3	2280.3
35°	2985.8	2977.0	2883.3	2731.9	2578.8	2546.3	2513.1	2467.6	2523.6	2648.7	2463.2
37.5°	3174.8	3167.8	3053.1	2892.1	2753.8	2731.9	2703.9	2672.4	2762.6	2927.1	2710.9
40°	3385.8	3371.7	3227.3	3066.3	2957.8	2947.2	2932.4	2923.6	3069.0	3314.0	3024.3
42.5°	3624.7	3597.6	3411.1	3258.0	3180.0	3188.8	3181.0	3216.0	3438.3	3760.4	3397.1
45°	3897.9	3843.5	3594.1	3462.0	3426.1	3461.1	3477.7	3566.9	3875.0	4275.9	3813.8
47.5°	4153.5	4083.4	3794.5	3683.3	3703.5	3763.9	3811.2	3968.7	4353.9	4785.5	4239.2
50°	4388.9	4310.1	4009.0	3912.7	4010.8	4096.5	4194.6	4416.9	4863.3	5309.7	4629.6
52.5°	4563.1	4506.2	4223.5	4163.1	4363.5	4477.4	4634.0	4915.0	5378.1	5809.5	4978.0
55°	4697.9	4667.2	4432.7	4450.1	4762.7	4925.5	5115.5	5438.4	5922.5	6257.7	5258.1
57.5°	4853.7	4831.0	4671.6	4796.8	5258.1	5463.0	5687.0	6045.9	6440.7	6652.5	5477.8
60°	5018.3	5018.3	4937.7	5214.3	5877.9	6112.4	6335.6	6614.9	6957.1	7007.9	5567.1
62.5°	5142.6	5174.9	5203.9	5659.0	6466.1	6757.5	7002.6	7270.5	7492.0	7183.0	5357.0
65°	5322.9	5392.1	5554.8	6172.8	7194.3	7576.0	7906.9	8131.8	7925.2	7043.7	4671.6
67.5°	5632.8	5735.2	6081.7	6937.9	8309.5	8881.1	9202.4	8813.6	7840.3	6167.6	3578.4
70°	5911.9	6056.4	6649.0	7908.6	9759.1	10352.6	10204.5	8655.3	6828.4	4521.0	2201.5
72°	5726.4	5884.0	6675.3	8331.4	10533.7	10813.8	10033.9	7670.5	5276.5	2759.0	1085.5
72.5°	5604.7	5768.4	6590.4	8320.9	10554.7	10755.2	9796.7	7279.2	4789.8	2414.2	878.0
75°	4682.1	4822.2	5666.8	7374.7	9301.3	8933.6	7645.1	4711.0	2201.5	779.9	451.6
77.5°	3057.5	3164.3	3907.5	5109.3	6515.1	6161.4	4653.3	2205.8	825.4	473.5	339.6
80°	1536.2	1612.4	2091.1	2686.4	3516.2	3235.2	2148.1	1067.0	552.3	342.3	267.0
82.5°	1068.8	1138.9	1439.9	1371.7	1469.7	1422.4	1010.2	890.2	413.2	216.3	140.0
85°	896.3	968.9	1191.3	977.7	800.0	729.2	723.9	841.2	273.1	106.8	118.2
87.5°	781.6	891.9	983.0	714.2	548.8	484.1	533.1	771.2	86.6	58.6	35.9
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°	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4	1991.4
2.5°	1952.8	1950.3	1937.1	1917.0	1902.1	1892.5	1874.0	1873.2	1875.0	1859.2	1865.4
5°	1897.7	1887.2	1853.1	1806.6	1769.1	1733.2	1693.8	1680.6	1669.3	1645.6	1648.3
7.5°	1840.0	1821.6	1762.0	1685.9	1613.2	1546.7	1481.0	1448.7	1424.2	1393.6	1393.6
10°	1805.8	1777.0	1685.9	1574.7	1459.1	1362.1	1264.0	1205.3	1162.5	1123.1	1120.4
12.5°	1804.1	1760.3	1633.3	1480.2	1321.8	1185.2	1051.3	961.1	897.2	850.8	846.5
15°	1818.1	1756.8	1589.6	1391.7	1192.2	1014.5	849.0	734.4	652.9	601.4	596.1
17.5°	1830.3	1752.4	1542.3	1298.9	1066.1	850.0	666.1	547.1	470.0	428.0	423.7
20°	1841.7	1742.8	1481.9	1200.9	927.0	695.9	520.8	424.5	373.8	350.2	347.5
22.5°	1858.3	1734.0	1418.9	1090.7	790.4	566.3	429.7	360.6	333.5	322.1	320.4
25°	1885.5	1734.9	1357.7	977.7	665.2	471.8	372.0	329.1	314.3	306.4	306.4
27.5°	1924.9	1745.4	1297.2	863.1	559.3	407.0	337.9	312.5	302.9	296.8	295.0
30°	1982.6	1764.7	1233.4	754.5	475.3	362.4	317.7	302.0	294.1	288.9	288.0
32.5°	2066.7	1798.8	1166.0	655.6	411.4	330.9	302.9	293.3	287.1	282.7	281.8
35°	2191.8	1859.2	1100.3	571.6	365.9	308.1	290.6	282.7	279.3	277.5	276.6
37.5°	2375.6	1956.4	1038.1	506.0	336.1	293.3	278.3	273.9	272.2	272.2	272.2
40°	2606.7	2084.2	982.1	459.5	319.5	281.8	269.6	266.1	266.1	267.0	267.0
42.5°	2887.7	2244.4	934.0	428.0	309.9	273.9	263.5	261.8	260.9	260.9	261.8
45°	3214.2	2433.4	904.2	403.6	302.9	269.6	259.1	258.2	254.7	253.0	253.0
47.5°	3542.5	2635.6	902.4	389.5	294.1	264.3	254.7	254.7	247.8	244.2	245.1
50°	3848.9	2816.8	921.7	386.1	288.9	256.5	250.3	251.2	241.6	237.2	236.3
52.5°	4095.7	2955.1	945.3	390.4	288.9	249.5	242.4	246.8	236.3	231.1	230.2
55°	4286.5	3051.4	954.1	400.1	292.4	243.4	235.5	242.4	234.6	227.6	227.6
57.5°	4423.0	3082.0	916.5	404.4	297.6	242.4	228.4	241.6	237.2	228.4	228.4
60°	4373.1	2904.4	776.4	387.8	296.8	240.7	223.2	243.4	245.9	236.3	236.3
62.5°	3983.6	2429.9	623.3	350.2	281.8	234.6	217.1	241.6	252.1	248.6	246.8
65°	3243.1	1782.2	483.1	305.5	256.5	221.5	204.0	225.9	238.0	241.6	242.4
67.5°	2285.5	1128.3	375.5	259.9	224.9	202.2	189.0	199.6	204.0	205.7	209.2
70°	1249.9	611.0	298.5	218.8	192.6	182.9	173.3	174.2	172.5	170.7	172.5
72°	627.6	399.2	252.1	190.0	170.7	164.6	160.2	157.5	157.5	155.0	155.8
72.5°	540.1	371.1	243.4	182.9	165.4	160.2	156.7	154.1	153.1	151.4	152.3
75°	359.8	294.1	203.1	153.1	141.0	137.4	139.2	136.6	137.4	135.6	136.6
77.5°	290.6	253.0	172.5	129.5	120.8	115.6	119.1	119.9	121.6	119.9	119.1
80°	243.4	215.3	144.4	106.8	100.7	96.3	98.0	104.1	105.1	99.7	98.9
82.5°	157.5	173.3	113.8	83.2	77.0	75.3	79.7	85.8	87.6	80.5	78.8
85°	132.2	139.2	82.2	56.9	50.7	49.0	57.8	63.9	68.2	61.3	59.5
87.5°	36.7	68.2	40.3	27.1	22.7	22.7	28.0	33.2	39.4	40.3	40.3
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)