

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: FAIL-SAFE

Report Number: P709153

Luminaire Tested: **4APN-28L950-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709153
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28L950-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 5000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

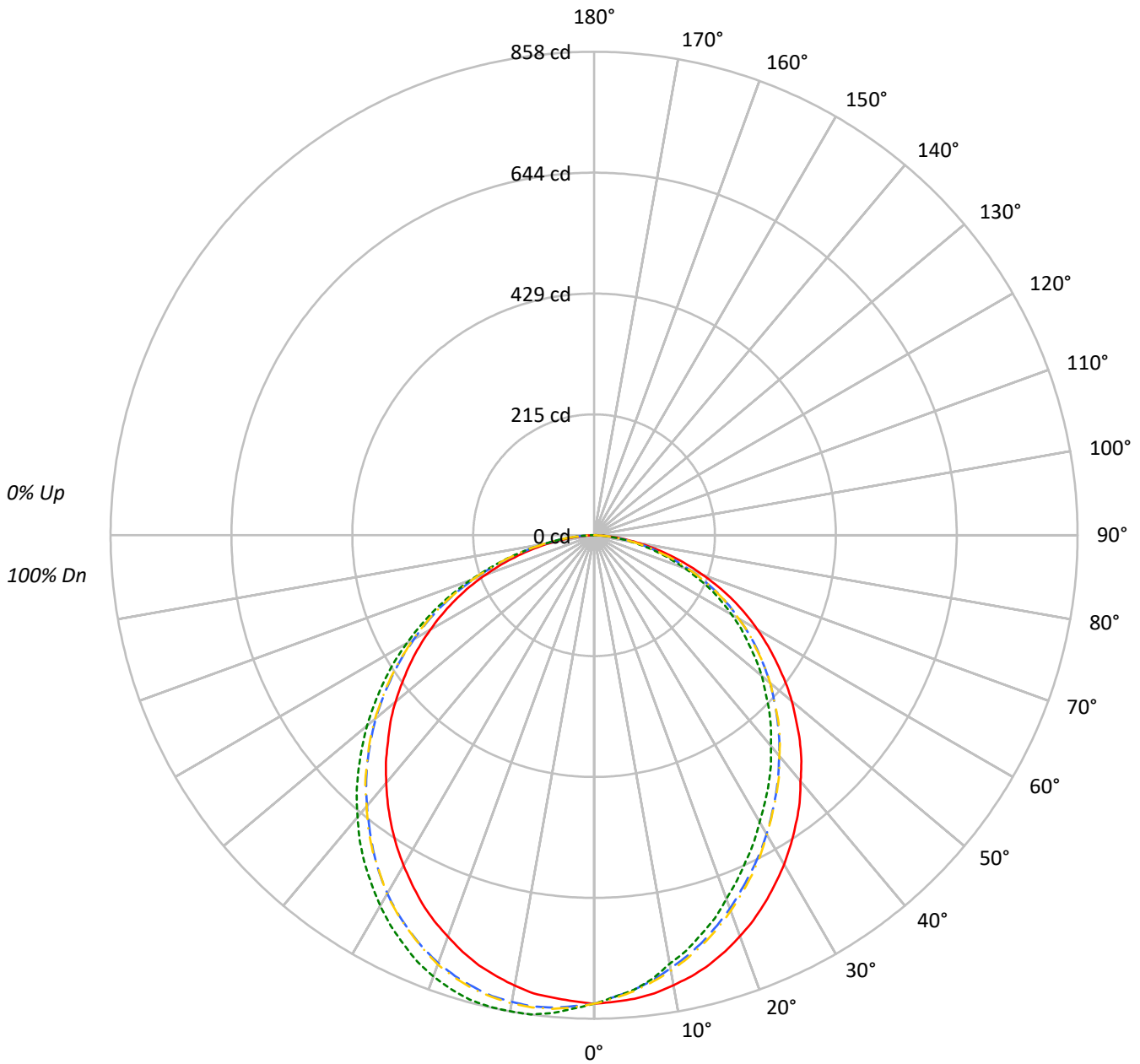
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2230.0 lumens
Efficiency: N/A
Efficacy: 69.3 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.33
Luminous Opening: Rectangular (W 0.29' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 32.2
Input Voltage (V): 120
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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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - · - · 90°-270° - · - · 135°-315°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20			20			20			20
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7672	7672	7672	7672
5°	7648	7501	7631	7883
10°	7596	7234	7604	8036
15°	7538	7008	7547	8149
20°	7434	6741	7443	8183
25°	7315	6492	7344	8148
30°	7185	6263	7205	8087
35°	7035	6081	7066	7999
40°	6865	5880	6911	7862
45°	6738	5732	6750	7719
50°	6575	5576	6603	7547
55°	6370	5371	6415	7338
60°	6180	5207	6196	7082
65°	5934	4991	5934	6776
70°	5533	4618	5506	6318
75°	5030	4192	4962	5668
80°	4346	3597	4197	4846
85°	3387	2689	3186	3980



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	78.6	3.5
10°-20°	223.0	10.0
20°-30°	331.5	14.9
30°-40°	390.7	17.5
40°-50°	397.8	17.8
50°-60°	354.4	15.9
60°-70°	267.0	12.0
70°-80°	148.5	6.7
80°-90°	38.6	1.7
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°-30°	633.0	28.4
0°-40°	1023.7	45.9
0°-60°	1775.9	79.6
0°-90°	2230.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2230.0	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	832	832	832	832	832	
5°	826	810	824	851	826	78
15°	789	734	790	853	789	222
25°	719	638	721	800	719	331
35°	625	540	627	710	625	391
45°	516	439	517	592	516	398
55°	396	334	399	456	396	355
65°	272	229	272	310	272	268
75°	141	118	139	159	141	150
85°	32	25	30	38	32	39
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
0°	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5
2.5°	828.7	828.7	829.6	825.8	821.1	819.3	818.3	817.4	819.3	820.2	819.3
5°	825.8	824.0	822.1	817.4	811.7	808.0	806.1	805.2	807.0	809.9	807.0
7.5°	820.2	816.4	812.7	806.1	799.5	793.9	791.0	789.2	791.0	793.9	792.0
10°	810.8	806.1	800.4	792.9	783.5	776.9	774.1	771.3	772.2	772.2	772.2
12.5°	801.4	794.8	788.2	778.8	768.5	760.9	756.2	752.5	754.4	755.3	755.3
15°	789.2	780.7	771.3	760.9	750.6	742.1	736.5	732.7	733.7	733.7	734.6
17.5°	774.1	764.7	755.3	743.1	730.8	721.4	714.9	710.2	712.0	713.0	713.9
20°	757.2	746.8	736.5	723.3	710.2	699.8	693.2	687.6	686.6	686.6	687.6
22.5°	739.3	728.0	715.8	701.7	687.6	676.3	669.7	664.1	663.1	663.1	664.1
25°	718.6	706.4	694.2	680.1	665.0	653.7	645.3	639.6	638.7	637.7	639.6
27.5°	697.0	684.8	672.5	658.4	642.4	631.1	622.7	617.0	615.2	614.2	616.1
30°	674.4	660.3	647.1	632.1	618.0	606.7	598.2	591.6	589.8	587.9	589.8
32.5°	650.0	635.8	621.7	606.7	592.6	581.3	572.8	566.2	564.4	563.4	565.3
35°	624.6	610.4	597.3	582.2	568.1	556.8	548.4	542.7	540.8	539.9	540.8
37.5°	599.2	585.1	571.9	556.8	542.7	531.4	523.0	517.3	516.4	515.4	516.4
40°	570.0	557.8	544.6	530.5	516.4	505.1	498.5	491.9	490.1	488.2	491.0
42.5°	544.6	532.4	519.2	506.0	491.9	480.6	473.1	467.5	465.6	464.7	465.6
45°	516.4	503.2	490.1	477.8	464.7	454.3	446.8	441.1	440.2	439.3	440.2
47.5°	486.3	475.0	463.7	451.5	438.3	428.0	421.4	415.7	413.9	412.0	413.9
50°	458.1	446.8	435.5	424.2	412.0	402.6	396.0	390.3	389.4	388.5	389.4
52.5°	428.0	416.7	406.3	395.1	384.7	375.3	368.7	364.0	363.1	362.1	363.1
55°	396.0	386.6	377.2	367.8	357.4	349.0	343.3	337.7	335.8	333.9	335.8
57.5°	365.9	357.4	348.0	338.6	329.2	321.7	316.0	311.3	310.4	309.5	310.4
60°	334.9	327.3	318.9	310.4	301.0	293.5	288.8	285.0	283.1	282.2	283.1
62.5°	303.8	296.3	289.7	281.2	272.8	267.1	262.4	258.7	256.8	255.8	256.8
65°	271.8	265.2	258.7	251.1	244.6	238.9	234.2	230.4	229.5	228.6	228.6
67.5°	238.9	233.3	227.6	221.0	213.5	207.9	203.2	200.3	199.4	198.5	199.4
70°	205.1	200.3	194.7	189.1	183.4	178.7	175.9	173.1	172.1	171.2	171.2
72.5°	173.1	169.3	164.6	159.9	155.2	150.5	147.7	145.8	144.9	143.9	143.9
75°	141.1	137.3	134.5	130.7	126.0	123.2	120.4	118.5	117.6	117.6	117.6
77.5°	111.0	108.2	105.3	101.6	98.8	95.9	94.1	93.1	92.2	92.2	92.2
80°	81.8	80.0	78.1	76.2	73.4	70.5	69.6	68.7	67.7	67.7	67.7
82.5°	55.5	54.6	52.7	50.8	48.9	48.0	47.0	46.1	46.1	46.1	46.1
85°	32.0	31.0	30.1	29.2	28.2	28.2	27.3	26.3	25.4	25.4	25.4
87.5°	13.2	13.2	13.2	12.2	11.3	11.3	11.3	11.3	11.3	11.3	11.3
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):

	110°	120°	130°	140°	150°	160°	170°	180°	190°	200°	210°
0°	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5
2.5°	817.4	819.3	821.1	824.0	826.8	829.6	828.7	827.7	831.5	836.2	837.1
5°	805.2	807.0	809.9	814.6	819.3	823.0	824.0	824.0	831.5	838.1	840.0
7.5°	790.1	792.9	796.7	801.4	808.0	813.6	816.4	820.2	827.7	836.2	840.0
10°	771.3	776.0	781.6	788.2	794.8	801.4	807.0	811.7	821.1	830.5	836.2
12.5°	754.4	759.1	764.7	772.2	780.7	789.2	794.8	801.4	812.7	824.0	830.5
15°	735.5	740.3	746.8	754.4	763.8	773.2	781.6	790.1	801.4	813.6	821.1
17.5°	714.9	719.6	726.1	735.5	745.9	756.2	765.6	775.1	788.2	801.4	809.9
20°	689.5	696.0	704.5	713.9	726.1	738.4	747.8	758.1	772.2	786.3	795.7
22.5°	665.0	671.6	681.0	692.3	705.4	718.6	729.9	741.2	756.2	770.3	780.7
25°	641.5	649.0	658.4	669.7	681.9	695.1	708.3	721.4	736.5	751.5	761.9
27.5°	618.0	624.6	634.0	645.3	659.4	672.5	685.7	698.9	714.9	730.8	742.1
30°	591.6	599.2	607.6	618.9	634.0	649.0	662.2	676.3	692.3	708.3	719.6
32.5°	567.2	573.8	582.2	593.5	608.6	623.6	637.7	652.8	667.8	683.8	695.1
35°	542.7	549.3	557.8	569.1	584.1	599.2	613.3	627.4	642.4	657.5	668.8
37.5°	518.3	524.9	533.3	544.6	558.7	573.8	586.9	601.0	616.1	631.1	641.5
40°	492.9	499.5	506.0	517.3	531.4	546.5	559.7	573.8	588.8	603.9	614.2
42.5°	467.5	474.1	482.5	493.8	507.0	520.2	533.3	546.5	560.6	574.7	585.1
45°	442.1	447.7	456.2	466.5	479.7	491.9	505.1	517.3	531.4	544.6	555.0
47.5°	415.7	421.4	428.0	438.3	451.5	464.7	477.8	490.1	502.3	515.4	524.9
50°	390.3	396.0	403.5	412.9	425.2	437.4	448.7	460.0	472.2	484.4	492.9
52.5°	364.0	369.7	376.2	385.6	396.0	407.3	417.6	428.9	440.2	451.5	460.0
55°	337.7	341.4	347.1	355.5	366.8	378.1	388.5	398.8	409.2	418.6	427.0
57.5°	311.3	316.0	322.6	330.1	339.6	349.0	358.4	367.8	377.2	386.6	394.1
60°	285.0	288.8	293.5	300.1	309.5	317.9	327.3	335.8	344.3	352.7	359.3
62.5°	257.7	261.5	266.2	272.8	280.3	287.8	296.3	303.8	311.3	318.9	325.4
65°	229.5	233.3	238.0	243.6	250.2	256.8	264.3	271.8	277.5	283.1	289.7
67.5°	200.3	204.1	208.8	213.5	219.2	225.7	232.3	238.9	244.6	250.2	254.9
70°	172.1	175.0	179.7	183.4	188.1	192.8	198.5	204.1	207.9	212.6	218.2
72.5°	144.9	147.7	151.4	155.2	158.0	161.8	167.4	172.1	176.8	182.5	185.3
75°	118.5	120.4	123.2	126.0	128.9	131.7	135.4	139.2	143.0	145.8	149.6
77.5°	92.2	94.1	96.9	98.8	100.6	102.5	105.3	108.2	111.0	112.9	116.6
80°	67.7	69.6	71.5	73.4	75.2	77.1	78.1	79.0	82.8	85.6	87.5
82.5°	46.1	47.0	48.0	49.9	50.8	51.7	52.7	52.7	54.6	56.4	59.3
85°	26.3	27.3	28.2	28.2	28.2	28.2	29.2	30.1	31.0	32.9	34.8
87.5°	10.3	10.3	11.3	11.3	11.3	11.3	11.3	11.3	12.2	14.1	15.0
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):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5	831.5
2.5°	836.2	837.1	839.0	840.0	840.9	840.9	841.8	842.8	840.9	839.0	838.1
5°	840.9	841.8	844.7	847.5	849.4	851.2	850.3	849.4	847.5	844.7	842.8
7.5°	841.8	844.7	847.5	851.2	854.1	857.8	855.9	854.1	850.3	846.5	843.7
10°	839.0	842.8	847.5	852.2	855.0	857.8	855.9	854.1	850.3	845.6	841.8
12.5°	835.3	840.0	845.6	850.3	853.1	856.9	854.1	851.2	846.5	841.8	837.1
15°	826.8	832.4	839.0	844.7	849.4	853.1	850.3	848.4	842.8	836.2	829.6
17.5°	816.4	824.0	830.5	837.1	840.9	844.7	842.8	840.9	834.3	826.8	819.3
20°	804.2	811.7	818.3	824.9	829.6	833.4	830.5	827.7	821.1	814.6	807.0
22.5°	789.2	796.7	804.2	810.8	815.5	819.3	815.5	810.8	804.2	797.6	790.1
25°	770.3	778.8	787.3	793.9	796.7	800.4	796.7	792.9	786.3	779.8	771.3
27.5°	751.5	760.0	768.5	775.1	777.9	781.6	777.9	774.1	767.5	760.9	752.5
30°	729.9	738.4	746.8	753.4	756.2	759.1	755.3	751.5	745.9	739.3	730.8
32.5°	705.4	713.9	720.5	727.1	730.8	734.6	730.8	728.0	721.4	713.0	704.5
35°	679.1	687.6	696.0	702.6	706.4	710.2	705.4	700.7	695.1	688.5	681.0
37.5°	650.0	659.4	668.8	676.3	679.1	682.9	679.1	674.4	668.8	662.2	653.7
40°	622.7	631.1	639.6	647.1	650.0	652.8	649.0	645.3	638.7	632.1	623.6
42.5°	594.5	602.9	610.4	617.0	619.9	623.6	619.9	615.2	610.4	604.8	597.3
45°	564.4	572.8	579.4	586.0	588.8	591.6	587.9	583.2	578.5	573.8	566.2
47.5°	533.3	540.8	547.4	554.0	555.9	558.7	555.0	552.1	547.4	542.7	536.1
50°	501.3	508.9	515.4	521.1	523.0	525.8	522.0	518.3	514.5	510.7	505.1
52.5°	468.4	475.0	481.6	487.2	489.1	491.0	487.2	483.5	479.7	475.9	470.3
55°	434.6	441.1	447.7	452.4	454.3	456.2	452.4	449.6	445.8	443.0	437.4
57.5°	400.7	407.3	412.9	417.6	419.5	421.4	417.6	413.9	411.0	408.2	403.5
60°	365.9	372.5	377.2	380.9	382.8	383.8	380.0	377.2	375.3	373.4	368.7
62.5°	332.0	336.7	341.4	344.3	346.1	347.1	344.3	342.4	340.5	338.6	334.9
65°	296.3	301.9	305.7	308.5	309.5	310.4	307.6	305.7	303.8	301.9	299.1
67.5°	260.5	265.2	268.1	270.9	271.8	271.8	271.8	270.9	269.0	266.2	263.4
70°	224.8	228.6	231.4	233.3	234.2	234.2	232.3	230.4	230.4	229.5	227.6
72.5°	188.1	190.9	192.8	194.7	194.7	194.7	194.7	195.6	194.7	192.8	190.0
75°	153.3	156.1	158.0	159.0	159.0	159.0	159.0	159.9	159.0	158.0	156.1
77.5°	120.4	122.3	123.2	124.2	124.2	124.2	125.1	126.0	125.1	124.2	123.2
80°	89.4	90.3	91.2	92.2	91.2	91.2	92.2	94.1	93.1	92.2	91.2
82.5°	61.1	62.1	63.0	63.0	64.0	64.9	64.9	64.9	64.9	64.0	63.0
85°	36.7	37.6	37.6	37.6	37.6	37.6	38.6	39.5	39.5	38.6	38.6
87.5°	16.9	17.9	16.9	16.0	15.0	15.0	16.9	18.8	18.8	17.9	17.9
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):

	330°	340°	350°	360°
0°	831.5	831.5	831.5	831.5
2.5°	839.0	838.1	833.4	828.7
5°	841.8	839.0	832.4	825.8
7.5°	841.8	838.1	828.7	820.2
10°	837.1	831.5	821.1	810.8
12.5°	831.5	824.9	812.7	801.4
15°	823.0	815.5	802.3	789.2
17.5°	810.8	801.4	788.2	774.1
20°	798.6	788.2	772.2	757.2
22.5°	781.6	772.2	755.3	739.3
25°	762.8	752.5	735.5	718.6
27.5°	743.1	730.8	713.9	697.0
30°	720.5	708.3	691.3	674.4
32.5°	696.0	684.8	667.8	650.0
35°	671.6	659.4	642.4	624.6
37.5°	644.3	633.0	616.1	599.2
40°	615.2	603.9	586.9	570.0
42.5°	587.9	577.5	560.6	544.6
45°	557.8	547.4	531.4	516.4
47.5°	526.7	516.4	501.3	486.3
50°	496.6	486.3	472.2	458.1
52.5°	462.8	454.3	441.1	428.0
55°	429.9	421.4	408.2	396.0
57.5°	396.9	389.4	377.2	365.9
60°	362.1	354.6	345.2	334.9
62.5°	329.2	322.6	313.2	303.8
65°	294.4	288.8	280.3	271.8
67.5°	258.7	254.0	246.4	238.9
70°	222.9	217.3	211.6	205.1
72.5°	187.2	184.4	178.7	173.1
75°	153.3	150.5	145.8	141.1
77.5°	121.3	118.5	114.8	111.0
80°	89.4	87.5	84.7	81.8
82.5°	62.1	60.2	58.3	55.5
85°	37.6	35.7	33.9	32.0
87.5°	16.9	16.0	14.1	13.2
90°	0.0	0.0	0.0	0.0

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