

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: P709141

Luminaire Tested: **4APN-28L935-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709141
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-28L935-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

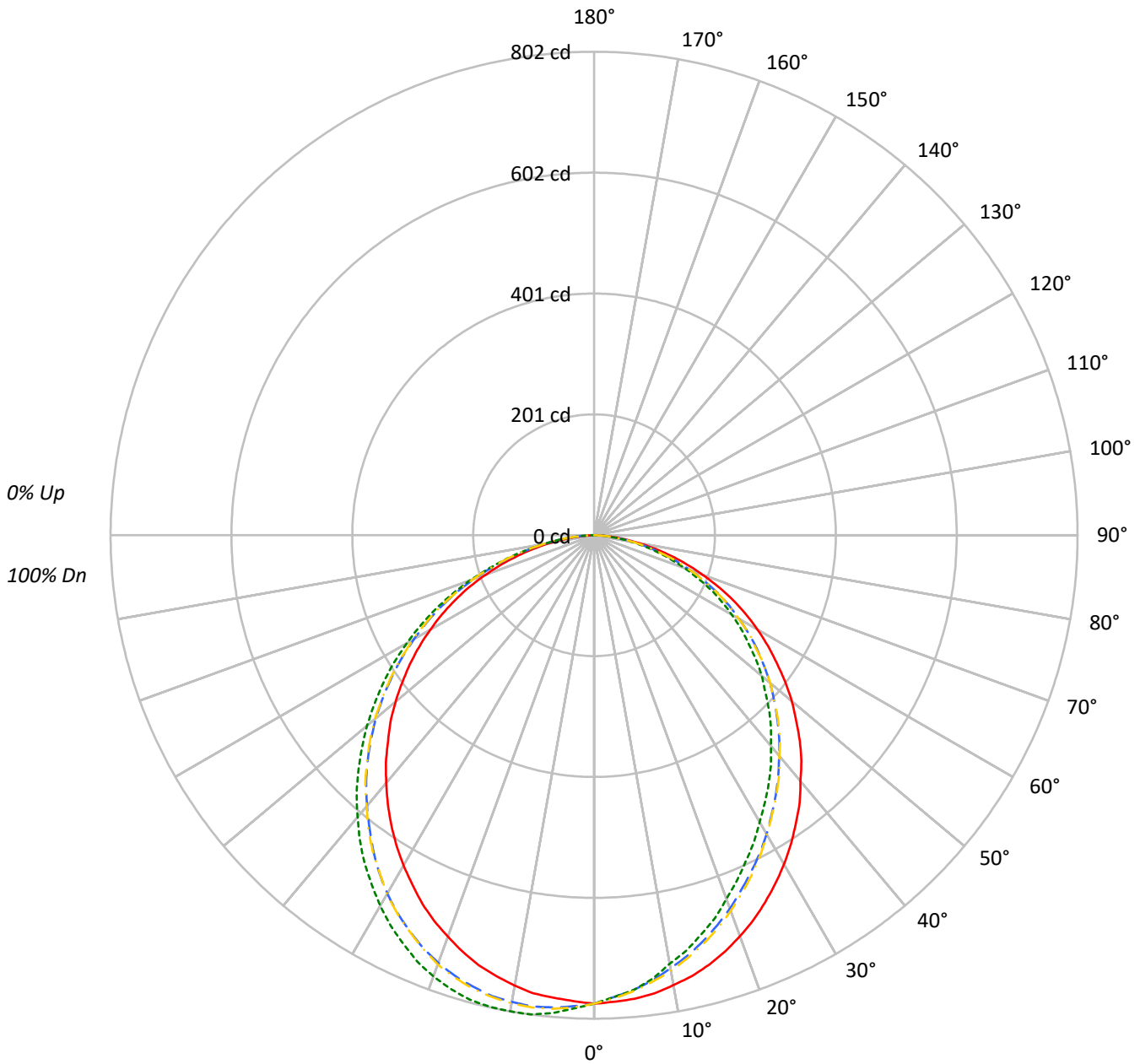
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2084.3 lumens
Efficiency: N/A
Efficacy: 64.7 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 (A_{in}): 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	50	30	10	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	86	86	86	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	72	72	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	61	61	61	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	53	53	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	46	46	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	41	41	41	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	36	36	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	32	32	32	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	29	29	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	27	27	27	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7170	7170	7170	7170
5°	7149	7010	7132	7368
10°	7099	6762	7108	7512
15°	7045	6550	7054	7616
20°	6948	6301	6957	7647
25°	6837	6067	6864	7616
30°	6715	5854	6734	7559
35°	6574	5683	6605	7475
40°	6416	5496	6459	7348
45°	6297	5356	6309	7215
50°	6145	5212	6171	7053
55°	5953	5020	5995	6859
60°	5776	4866	5790	6619
65°	5547	4663	5547	6333
70°	5169	4316	5147	5905
75°	4702	3918	4638	5297
80°	4065	3363	3921	4532
85°	3165	2509	2975	3726



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.4	3.5
10°-20°	208.4	10.0
20°-30°	309.8	14.9
30°-40°	365.2	17.5
40°-50°	371.8	17.8
50°-60°	331.2	15.9
60°-70°	249.6	12.0
70°-80°	138.8	6.7
80°-90°	36.1	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°	591.7	28.4
0°-40°	956.8	45.9
0°-60°	1659.9	79.6
0°-90°	2084.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2084.3	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	777	777	777	777	777	
5°	772	757	770	796	772	73
15°	738	686	738	797	738	208
25°	672	596	674	748	672	309
35°	584	505	586	664	584	365
45°	483	410	484	553	483	372
55°	370	312	373	426	370	332
65°	254	214	254	290	254	251
75°	132	110	130	149	132	140
85°	30	24	28	35	30	36
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°	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1
2.5°	774.5	774.5	775.4	771.9	767.5	765.7	764.8	764.0	765.7	766.6	765.7
5°	771.9	770.1	768.4	764.0	758.7	755.2	753.4	752.5	754.3	756.9	754.3
7.5°	766.6	763.1	759.6	753.4	747.3	742.0	739.3	737.6	739.3	742.0	740.2
10°	757.8	753.4	748.1	741.1	732.3	726.2	723.5	720.9	721.8	721.8	721.8
12.5°	749.0	742.9	736.7	727.9	718.2	711.2	706.8	703.3	705.1	705.9	705.9
15°	737.6	729.7	720.9	711.2	701.5	693.6	688.4	684.8	685.7	685.7	686.6
17.5°	723.5	714.7	705.9	694.5	683.1	674.3	668.1	663.7	665.5	666.4	667.3
20°	707.7	698.0	688.4	676.0	663.7	654.1	647.9	642.6	641.8	641.8	642.6
22.5°	691.0	680.4	669.0	655.8	642.6	632.1	625.9	620.7	619.8	619.8	620.7
25°	671.6	660.2	648.8	635.6	621.5	611.0	603.1	597.8	596.9	596.0	597.8
27.5°	651.4	640.0	628.6	615.4	600.4	589.9	582.0	576.7	574.9	574.1	575.8
30°	630.3	617.1	604.8	590.8	577.6	567.0	559.1	553.0	551.2	549.5	551.2
32.5°	607.5	594.3	581.1	567.0	553.8	543.3	535.4	529.2	527.5	526.6	528.4
35°	583.7	570.5	558.2	544.2	531.0	520.4	512.5	507.3	505.5	504.6	505.5
37.5°	560.0	546.8	534.5	520.4	507.3	496.7	488.8	483.5	482.6	481.8	482.6
40°	532.7	521.3	509.0	495.8	482.6	472.1	465.9	459.8	458.0	456.3	458.9
42.5°	509.0	497.6	485.3	473.0	459.8	449.2	442.2	436.9	435.2	434.3	435.2
45°	482.6	470.3	458.0	446.6	434.3	424.6	417.6	412.3	411.4	410.5	411.4
47.5°	454.5	444.0	433.4	422.0	409.7	400.0	393.8	388.6	386.8	385.1	386.8
50°	428.1	417.6	407.0	396.5	385.1	376.3	370.1	364.8	364.0	363.1	364.0
52.5°	400.0	389.5	379.8	369.2	359.6	350.8	344.6	340.2	339.3	338.5	339.3
55°	370.1	361.3	352.5	343.7	334.1	326.2	320.9	315.6	313.8	312.1	313.8
57.5°	342.0	334.1	325.3	316.5	307.7	300.7	295.4	291.0	290.1	289.2	290.1
60°	313.0	305.9	298.0	290.1	281.3	274.3	269.9	266.4	264.6	263.7	264.6
62.5°	284.0	276.9	270.8	262.9	254.9	249.7	245.3	241.8	240.0	239.1	240.0
65°	254.1	247.9	241.8	234.7	228.6	223.3	218.9	215.4	214.5	213.6	213.6
67.5°	223.3	218.0	212.7	206.6	199.6	194.3	189.9	187.3	186.4	185.5	186.4
70°	191.6	187.3	182.0	176.7	171.4	167.0	164.4	161.8	160.9	160.0	160.0
72.5°	161.8	158.2	153.8	149.5	145.1	140.7	138.0	136.3	135.4	134.5	134.5
75°	131.9	128.4	125.7	122.2	117.8	115.2	112.5	110.8	109.9	109.9	109.9
77.5°	103.7	101.1	98.5	94.9	92.3	89.7	87.9	87.0	86.2	86.2	86.2
80°	76.5	74.7	73.0	71.2	68.6	65.9	65.1	64.2	63.3	63.3	63.3
82.5°	51.9	51.0	49.2	47.5	45.7	44.8	44.0	43.1	43.1	43.1	43.1
85°	29.9	29.0	28.1	27.3	26.4	26.4	25.5	24.6	23.7	23.7	23.7
87.5°	12.3	12.3	12.3	11.4	10.5	10.5	10.5	10.5	10.5	10.5	10.5
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°	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1
2.5°	764.0	765.7	767.5	770.1	772.7	775.4	774.5	773.6	777.1	781.5	782.4
5°	752.5	754.3	756.9	761.3	765.7	769.2	770.1	770.1	777.1	783.3	785.1
7.5°	738.5	741.1	744.6	749.0	755.2	760.4	763.1	766.6	773.6	781.5	785.1
10°	720.9	725.3	730.6	736.7	742.9	749.0	754.3	758.7	767.5	776.3	781.5
12.5°	705.1	709.5	714.7	721.8	729.7	737.6	742.9	749.0	759.6	770.1	776.3
15°	687.5	691.9	698.0	705.1	713.8	722.6	730.6	738.5	749.0	760.4	767.5
17.5°	668.1	672.5	678.7	687.5	697.1	706.8	715.6	724.4	736.7	749.0	756.9
20°	644.4	650.5	658.5	667.3	678.7	690.1	698.9	708.6	721.8	734.9	743.7
22.5°	621.5	627.7	636.5	647.0	659.3	671.6	682.2	692.7	706.8	720.0	729.7
25°	599.6	606.6	615.4	625.9	637.4	649.7	662.0	674.3	688.4	702.4	712.1
27.5°	577.6	583.7	592.5	603.1	616.3	628.6	640.9	653.2	668.1	683.1	693.6
30°	553.0	560.0	567.9	578.5	592.5	606.6	618.9	632.1	647.0	662.0	672.5
32.5°	530.1	536.3	544.2	554.7	568.8	582.9	596.0	610.1	624.2	639.1	649.7
35°	507.3	513.4	521.3	531.9	545.9	560.0	573.2	586.4	600.4	614.5	625.1
37.5°	484.4	490.5	498.5	509.0	522.2	536.3	548.6	561.8	575.8	589.9	599.6
40°	460.7	466.8	473.0	483.5	496.7	510.8	523.1	536.3	550.3	564.4	574.1
42.5°	436.9	443.1	451.0	461.5	473.8	486.2	498.5	510.8	524.0	537.1	546.8
45°	413.2	418.5	426.4	436.0	448.4	459.8	472.1	483.5	496.7	509.0	518.7
47.5°	388.6	393.8	400.0	409.7	422.0	434.3	446.6	458.0	469.5	481.8	490.5
50°	364.8	370.1	377.1	385.9	397.4	408.8	419.3	429.9	441.3	452.7	460.7
52.5°	340.2	345.5	351.6	360.4	370.1	380.7	390.3	400.9	411.4	422.0	429.9
55°	315.6	319.1	324.4	332.3	342.9	353.4	363.1	372.7	382.4	391.2	399.1
57.5°	291.0	295.4	301.5	308.6	317.4	326.2	334.9	343.7	352.5	361.3	368.4
60°	266.4	269.9	274.3	280.4	289.2	297.1	305.9	313.8	321.8	329.7	335.8
62.5°	240.9	244.4	248.8	254.9	262.0	269.0	276.9	284.0	291.0	298.0	304.2
65°	214.5	218.0	222.4	227.7	233.8	240.0	247.0	254.1	259.3	264.6	270.8
67.5°	187.3	190.8	195.2	199.6	204.8	211.0	217.1	223.3	228.6	233.8	238.2
70°	160.9	163.5	167.9	171.4	175.8	180.2	185.5	190.8	194.3	198.7	204.0
72.5°	135.4	138.0	141.5	145.1	147.7	151.2	156.5	160.9	165.3	170.5	173.2
75°	110.8	112.5	115.2	117.8	120.4	123.1	126.6	130.1	133.6	136.3	139.8
77.5°	86.2	87.9	90.5	92.3	94.1	95.8	98.5	101.1	103.7	105.5	109.0
80°	63.3	65.1	66.8	68.6	70.3	72.1	73.0	73.8	77.4	80.0	81.8
82.5°	43.1	44.0	44.8	46.6	47.5	48.4	49.2	49.2	51.0	52.7	55.4
85°	24.6	25.5	26.4	26.4	26.4	26.4	27.3	28.1	29.0	30.8	32.5
87.5°	9.7	9.7	10.5	10.5	10.5	10.5	10.5	10.5	11.4	13.2	14.1
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):

	220°	230°	240°	250°	260°	270°	280°	290°	300°	310°	320°
0°	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1	777.1
2.5°	781.5	782.4	784.2	785.1	785.9	785.9	786.8	787.7	785.9	784.2	783.3
5°	785.9	786.8	789.5	792.1	793.8	795.6	794.7	793.8	792.1	789.5	787.7
7.5°	786.8	789.5	792.1	795.6	798.2	801.8	800.0	798.2	794.7	791.2	788.6
10°	784.2	787.7	792.1	796.5	799.1	801.8	800.0	798.2	794.7	790.3	786.8
12.5°	780.7	785.1	790.3	794.7	797.4	800.9	798.2	795.6	791.2	786.8	782.4
15°	772.7	778.0	784.2	789.5	793.8	797.4	794.7	793.0	787.7	781.5	775.4
17.5°	763.1	770.1	776.3	782.4	785.9	789.5	787.7	785.9	779.8	772.7	765.7
20°	751.6	758.7	764.8	771.0	775.4	778.9	776.3	773.6	767.5	761.3	754.3
22.5°	737.6	744.6	751.6	757.8	762.2	765.7	762.2	757.8	751.6	745.5	738.5
25°	720.0	727.9	735.8	742.0	744.6	748.1	744.6	741.1	734.9	728.8	720.9
27.5°	702.4	710.3	718.2	724.4	727.0	730.6	727.0	723.5	717.4	711.2	703.3
30°	682.2	690.1	698.0	704.2	706.8	709.5	705.9	702.4	697.1	691.0	683.1
32.5°	659.3	667.3	673.4	679.6	683.1	686.6	683.1	680.4	674.3	666.4	658.5
35°	634.7	642.6	650.5	656.7	660.2	663.7	659.3	654.9	649.7	643.5	636.5
37.5°	607.5	616.3	625.1	632.1	634.7	638.2	634.7	630.3	625.1	618.9	611.0
40°	582.0	589.9	597.8	604.8	607.5	610.1	606.6	603.1	596.9	590.8	582.9
42.5°	555.6	563.5	570.5	576.7	579.3	582.9	579.3	574.9	570.5	565.3	558.2
45°	527.5	535.4	541.5	547.7	550.3	553.0	549.5	545.1	540.7	536.3	529.2
47.5°	498.5	505.5	511.6	517.8	519.6	522.2	518.7	516.0	511.6	507.3	501.1
50°	468.6	475.6	481.8	487.0	488.8	491.4	487.9	484.4	480.9	477.4	472.1
52.5°	437.8	444.0	450.1	455.4	457.1	458.9	455.4	451.9	448.4	444.8	439.6
55°	406.2	412.3	418.5	422.9	424.6	426.4	422.9	420.2	416.7	414.1	408.8
57.5°	374.5	380.7	385.9	390.3	392.1	393.8	390.3	386.8	384.2	381.5	377.1
60°	342.0	348.1	352.5	356.0	357.8	358.7	355.2	352.5	350.8	349.0	344.6
62.5°	310.3	314.7	319.1	321.8	323.5	324.4	321.8	320.0	318.2	316.5	313.0
65°	276.9	282.2	285.7	288.4	289.2	290.1	287.5	285.7	284.0	282.2	279.6
67.5°	243.5	247.9	250.5	253.2	254.1	254.1	254.1	253.2	251.4	248.8	246.2
70°	210.1	213.6	216.3	218.0	218.9	218.9	217.1	215.4	215.4	214.5	212.7
72.5°	175.8	178.5	180.2	182.0	182.0	182.0	182.0	182.9	182.0	180.2	177.6
75°	143.3	145.9	147.7	148.6	148.6	148.6	148.6	149.5	148.6	147.7	145.9
77.5°	112.5	114.3	115.2	116.0	116.0	116.0	116.9	117.8	116.9	116.0	115.2
80°	83.5	84.4	85.3	86.2	85.3	85.3	86.2	87.9	87.0	86.2	85.3
82.5°	57.1	58.0	58.9	58.9	59.8	60.7	60.7	60.7	60.7	59.8	58.9
85°	34.3	35.2	35.2	35.2	35.2	35.2	36.0	36.9	36.9	36.0	36.0
87.5°	15.8	16.7	15.8	14.9	14.1	14.1	15.8	17.6	17.6	16.7	16.7
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°	777.1	777.1	777.1	777.1
2.5°	784.2	783.3	778.9	774.5
5°	786.8	784.2	778.0	771.9
7.5°	786.8	783.3	774.5	766.6
10°	782.4	777.1	767.5	757.8
12.5°	777.1	771.0	759.6	749.0
15°	769.2	762.2	749.9	737.6
17.5°	757.8	749.0	736.7	723.5
20°	746.4	736.7	721.8	707.7
22.5°	730.6	721.8	705.9	691.0
25°	713.0	703.3	687.5	671.6
27.5°	694.5	683.1	667.3	651.4
30°	673.4	662.0	646.2	630.3
32.5°	650.5	640.0	624.2	607.5
35°	627.7	616.3	600.4	583.7
37.5°	602.2	591.6	575.8	560.0
40°	574.9	564.4	548.6	532.7
42.5°	549.5	539.8	524.0	509.0
45°	521.3	511.6	496.7	482.6
47.5°	492.3	482.6	468.6	454.5
50°	464.2	454.5	441.3	428.1
52.5°	432.5	424.6	412.3	400.0
55°	401.8	393.8	381.5	370.1
57.5°	371.0	364.0	352.5	342.0
60°	338.5	331.4	322.6	313.0
62.5°	307.7	301.5	292.7	284.0
65°	275.2	269.9	262.0	254.1
67.5°	241.8	237.4	230.3	223.3
70°	208.4	203.1	197.8	191.6
72.5°	174.9	172.3	167.0	161.8
75°	143.3	140.7	136.3	131.9
77.5°	113.4	110.8	107.3	103.7
80°	83.5	81.8	79.1	76.5
82.5°	58.0	56.3	54.5	51.9
85°	35.2	33.4	31.6	29.9
87.5°	15.8	14.9	13.2	12.3
90°	0.0	0.0	0.0	0.0

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