

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: P709137

Luminaire Tested: **4APN-20L930-X-UNV**

Issue Date: 09/12/2023



Test Information

Test Method: LM-79-08
Report Number: P709137
Test Lab: INNOVATION CENTER(G2)
Issue Date: 09/12/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: 4APN-20L930-X-UNV
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

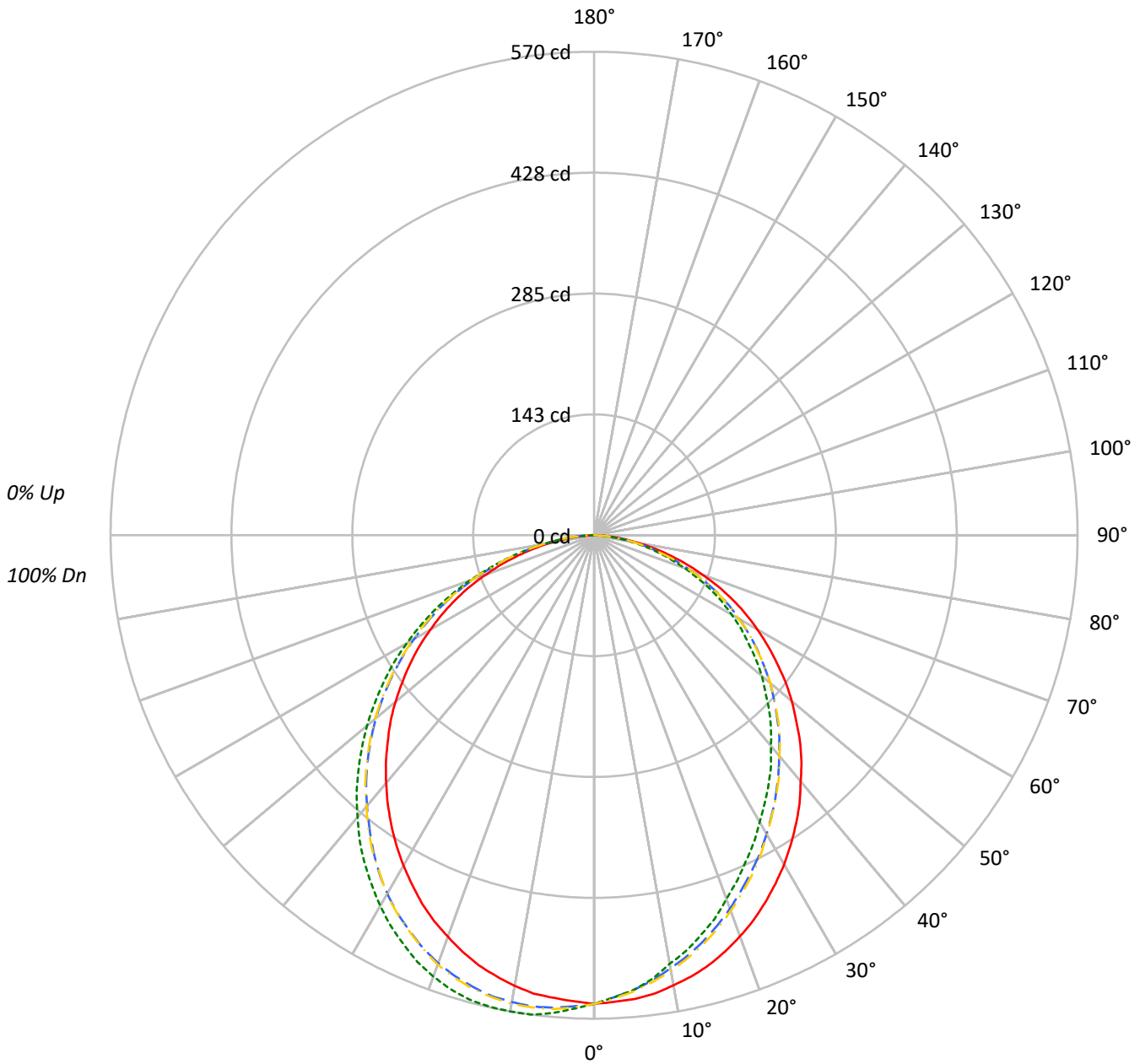
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1481.8 lumens
Efficiency: N/A
Efficacy: 62.3 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): 23.8
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	50	30	10	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100	100
1	109	104	100	96	106	102	98	95	98	94	92	94	91	89	90	88	86	84	84	84	84
2	99	91	84	78	96	89	83	77	85	80	76	82	78	74	79	76	72	70	70	70	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	62	70	65	61	59	59	59	59
4	83	71	62	55	81	70	61	55	67	60	54	65	59	54	63	57	53	51	51	51	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44	44	44	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	38	38	38	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	34	34	34	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	33	43	37	32	30	30	30	30
9	57	43	35	30	55	43	35	30	42	35	30	41	34	29	40	34	29	27	27	27	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	27	25	25	25	25

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	5097	5097	5097	5097
5°	5083	4984	5071	5238
10°	5048	4807	5053	5340
15°	5009	4656	5015	5415
20°	4940	4480	4946	5437
25°	4861	4314	4880	5415
30°	4774	4161	4788	5374
35°	4674	4041	4696	5315
40°	4562	3907	4592	5225
45°	4477	3809	4486	5129
50°	4369	3705	4386	5015
55°	4232	3569	4263	4875
60°	4106	3460	4117	4705
65°	3943	3316	3943	4504
70°	3677	3070	3658	4197
75°	3344	2784	3297	3764
80°	2890	2391	2789	3220
85°	2255	1789	2117	2646



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.2	3.5
10°-20°	148.2	10.0
20°-30°	220.3	14.9
30°-40°	259.6	17.5
40°-50°	264.3	17.8
50°-60°	235.5	15.9
60°-70°	177.4	12.0
70°-80°	98.7	6.7
80°-90°	25.6	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°	420.6	28.4
0°-40°	680.3	45.9
0°-60°	1180.1	79.6
0°-90°	1481.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1481.8	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	552	552	552	552	552	
5°	549	538	548	566	549	52
15°	524	488	525	567	524	148
25°	478	424	479	532	478	220
35°	415	359	417	472	415	260
45°	343	292	344	393	343	264
55°	263	222	265	303	263	236
65°	181	152	181	206	181	178
75°	94	78	92	106	94	100
85°	21	17	20	25	21	26
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°	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5
2.5°	550.6	550.6	551.3	548.8	545.6	544.4	543.8	543.1	544.4	545.0	544.4
5°	548.8	547.5	546.3	543.1	539.4	536.9	535.6	535.0	536.3	538.1	536.3
7.5°	545.0	542.5	540.0	535.6	531.3	527.5	525.6	524.4	525.6	527.5	526.3
10°	538.8	535.6	531.9	526.9	520.6	516.3	514.4	512.5	513.1	513.1	513.1
12.5°	532.5	528.1	523.8	517.5	510.6	505.6	502.5	500.0	501.3	501.9	501.9
15°	524.4	518.8	512.5	505.6	498.8	493.1	489.4	486.9	487.5	487.5	488.1
17.5°	514.4	508.1	501.9	493.8	485.6	479.4	475.0	471.9	473.1	473.8	474.4
20°	503.1	496.3	489.4	480.6	471.9	465.0	460.6	456.9	456.3	456.3	456.9
22.5°	491.3	483.8	475.6	466.3	456.9	449.4	445.0	441.3	440.6	440.6	441.3
25°	477.5	469.4	461.3	451.9	441.9	434.4	428.8	425.0	424.4	423.8	425.0
27.5°	463.1	455.0	446.9	437.5	426.9	419.4	413.8	410.0	408.8	408.1	409.4
30°	448.1	438.8	430.0	420.0	410.6	403.1	397.5	393.1	391.9	390.6	391.9
32.5°	431.9	422.5	413.1	403.1	393.8	386.3	380.6	376.3	375.0	374.4	375.6
35°	415.0	405.6	396.9	386.9	377.5	370.0	364.4	360.6	359.4	358.8	359.4
37.5°	398.1	388.8	380.0	370.0	360.6	353.1	347.5	343.8	343.1	342.5	343.1
40°	378.8	370.6	361.9	352.5	343.1	335.6	331.3	326.9	325.6	324.4	326.3
42.5°	361.9	353.8	345.0	336.3	326.9	319.4	314.4	310.6	309.4	308.8	309.4
45°	343.1	334.4	325.6	317.5	308.8	301.9	296.9	293.1	292.5	291.9	292.5
47.5°	323.1	315.6	308.1	300.0	291.3	284.4	280.0	276.3	275.0	273.8	275.0
50°	304.4	296.9	289.4	281.9	273.8	267.5	263.1	259.4	258.8	258.1	258.8
52.5°	284.4	276.9	270.0	262.5	255.6	249.4	245.0	241.9	241.3	240.6	241.3
55°	263.1	256.9	250.6	244.4	237.5	231.9	228.1	224.4	223.1	221.9	223.1
57.5°	243.1	237.5	231.3	225.0	218.8	213.8	210.0	206.9	206.3	205.6	206.3
60°	222.5	217.5	211.9	206.3	200.0	195.0	191.9	189.4	188.1	187.5	188.1
62.5°	201.9	196.9	192.5	186.9	181.3	177.5	174.4	171.9	170.6	170.0	170.6
65°	180.6	176.3	171.9	166.9	162.5	158.8	155.6	153.1	152.5	151.9	151.9
67.5°	158.8	155.0	151.3	146.9	141.9	138.1	135.0	133.1	132.5	131.9	132.5
70°	136.3	133.1	129.4	125.6	121.9	118.8	116.9	115.0	114.4	113.8	113.8
72.5°	115.0	112.5	109.4	106.3	103.1	100.0	98.1	96.9	96.3	95.6	95.6
75°	93.8	91.3	89.4	86.9	83.8	81.9	80.0	78.8	78.1	78.1	78.1
77.5°	73.8	71.9	70.0	67.5	65.6	63.8	62.5	61.9	61.3	61.3	61.3
80°	54.4	53.1	51.9	50.6	48.8	46.9	46.3	45.6	45.0	45.0	45.0
82.5°	36.9	36.3	35.0	33.8	32.5	31.9	31.3	30.6	30.6	30.6	30.6
85°	21.3	20.6	20.0	19.4	18.8	18.8	18.1	17.5	16.9	16.9	16.9
87.5°	8.8	8.8	8.8	8.1	7.5	7.5	7.5	7.5	7.5	7.5	7.5
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°	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5
2.5°	543.1	544.4	545.6	547.5	549.4	551.3	550.6	550.0	552.5	555.6	556.3
5°	535.0	536.3	538.1	541.3	544.4	546.9	547.5	547.5	552.5	556.9	558.1
7.5°	525.0	526.9	529.4	532.5	536.9	540.6	542.5	545.0	550.0	555.6	558.1
10°	512.5	515.6	519.4	523.8	528.1	532.5	536.3	539.4	545.6	551.9	555.6
12.5°	501.3	504.4	508.1	513.1	518.8	524.4	528.1	532.5	540.0	547.5	551.9
15°	488.8	491.9	496.3	501.3	507.5	513.8	519.4	525.0	532.5	540.6	545.6
17.5°	475.0	478.1	482.5	488.8	495.6	502.5	508.8	515.0	523.8	532.5	538.1
20°	458.1	462.5	468.1	474.4	482.5	490.6	496.9	503.8	513.1	522.5	528.8
22.5°	441.9	446.3	452.5	460.0	468.8	477.5	485.0	492.5	502.5	511.9	518.8
25°	426.3	431.3	437.5	445.0	453.1	461.9	470.6	479.4	489.4	499.4	506.3
27.5°	410.6	415.0	421.3	428.8	438.1	446.9	455.6	464.4	475.0	485.6	493.1
30°	393.1	398.1	403.8	411.3	421.3	431.3	440.0	449.4	460.0	470.6	478.1
32.5°	376.9	381.3	386.9	394.4	404.4	414.4	423.8	433.8	443.8	454.4	461.9
35°	360.6	365.0	370.6	378.1	388.1	398.1	407.5	416.9	426.9	436.9	444.4
37.5°	344.4	348.8	354.4	361.9	371.3	381.3	390.0	399.4	409.4	419.4	426.3
40°	327.5	331.9	336.3	343.8	353.1	363.1	371.9	381.3	391.3	401.3	408.1
42.5°	310.6	315.0	320.6	328.1	336.9	345.6	354.4	363.1	372.5	381.9	388.8
45°	293.8	297.5	303.1	310.0	318.8	326.9	335.6	343.8	353.1	361.9	368.8
47.5°	276.3	280.0	284.4	291.3	300.0	308.8	317.5	325.6	333.8	342.5	348.8
50°	259.4	263.1	268.1	274.4	282.5	290.6	298.1	305.6	313.8	321.9	327.5
52.5°	241.9	245.6	250.0	256.3	263.1	270.6	277.5	285.0	292.5	300.0	305.6
55°	224.4	226.9	230.6	236.3	243.8	251.3	258.1	265.0	271.9	278.1	283.8
57.5°	206.9	210.0	214.4	219.4	225.6	231.9	238.1	244.4	250.6	256.9	261.9
60°	189.4	191.9	195.0	199.4	205.6	211.3	217.5	223.1	228.8	234.4	238.8
62.5°	171.3	173.8	176.9	181.3	186.3	191.3	196.9	201.9	206.9	211.9	216.3
65°	152.5	155.0	158.1	161.9	166.3	170.6	175.6	180.6	184.4	188.1	192.5
67.5°	133.1	135.6	138.8	141.9	145.6	150.0	154.4	158.8	162.5	166.3	169.4
70°	114.4	116.3	119.4	121.9	125.0	128.1	131.9	135.6	138.1	141.3	145.0
72.5°	96.3	98.1	100.6	103.1	105.0	107.5	111.3	114.4	117.5	121.3	123.1
75°	78.8	80.0	81.9	83.8	85.6	87.5	90.0	92.5	95.0	96.9	99.4
77.5°	61.3	62.5	64.4	65.6	66.9	68.1	70.0	71.9	73.8	75.0	77.5
80°	45.0	46.3	47.5	48.8	50.0	51.3	51.9	52.5	55.0	56.9	58.1
82.5°	30.6	31.3	31.9	33.1	33.8	34.4	35.0	35.0	36.3	37.5	39.4
85°	17.5	18.1	18.8	18.8	18.8	18.8	19.4	20.0	20.6	21.9	23.1
87.5°	6.9	6.9	7.5	7.5	7.5	7.5	7.5	7.5	8.1	9.4	10.0
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°	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5	552.5
2.5°	555.6	556.3	557.5	558.1	558.8	558.8	559.4	560.0	558.8	557.5	556.9
5°	558.8	559.4	561.3	563.1	564.4	565.6	565.0	564.4	563.1	561.3	560.0
7.5°	559.4	561.3	563.1	565.6	567.5	570.0	568.8	567.5	565.0	562.5	560.6
10°	557.5	560.0	563.1	566.3	568.1	570.0	568.8	567.5	565.0	561.9	559.4
12.5°	555.0	558.1	561.9	565.0	566.9	569.4	567.5	565.6	562.5	559.4	556.3
15°	549.4	553.1	557.5	561.3	564.4	566.9	565.0	563.8	560.0	555.6	551.3
17.5°	542.5	547.5	551.9	556.3	558.8	561.3	560.0	558.8	554.4	549.4	544.4
20°	534.4	539.4	543.8	548.1	551.3	553.8	551.9	550.0	545.6	541.3	536.3
22.5°	524.4	529.4	534.4	538.8	541.9	544.4	541.9	538.8	534.4	530.0	525.0
25°	511.9	517.5	523.1	527.5	529.4	531.9	529.4	526.9	522.5	518.1	512.5
27.5°	499.4	505.0	510.6	515.0	516.9	519.4	516.9	514.4	510.0	505.6	500.0
30°	485.0	490.6	496.3	500.6	502.5	504.4	501.9	499.4	495.6	491.3	485.6
32.5°	468.8	474.4	478.8	483.1	485.6	488.1	485.6	483.8	479.4	473.8	468.1
35°	451.3	456.9	462.5	466.9	469.4	471.9	468.8	465.6	461.9	457.5	452.5
37.5°	431.9	438.1	444.4	449.4	451.3	453.8	451.3	448.1	444.4	440.0	434.4
40°	413.8	419.4	425.0	430.0	431.9	433.8	431.3	428.8	424.4	420.0	414.4
42.5°	395.0	400.6	405.6	410.0	411.9	414.4	411.9	408.8	405.6	401.9	396.9
45°	375.0	380.6	385.0	389.4	391.3	393.1	390.6	387.5	384.4	381.3	376.3
47.5°	354.4	359.4	363.8	368.1	369.4	371.3	368.8	366.9	363.8	360.6	356.3
50°	333.1	338.1	342.5	346.3	347.5	349.4	346.9	344.4	341.9	339.4	335.6
52.5°	311.3	315.6	320.0	323.8	325.0	326.3	323.8	321.3	318.8	316.3	312.5
55°	288.8	293.1	297.5	300.6	301.9	303.1	300.6	298.8	296.3	294.4	290.6
57.5°	266.3	270.6	274.4	277.5	278.8	280.0	277.5	275.0	273.1	271.3	268.1
60°	243.1	247.5	250.6	253.1	254.4	255.0	252.5	250.6	249.4	248.1	245.0
62.5°	220.6	223.8	226.9	228.8	230.0	230.6	228.8	227.5	226.3	225.0	222.5
65°	196.9	200.6	203.1	205.0	205.6	206.3	204.4	203.1	201.9	200.6	198.8
67.5°	173.1	176.3	178.1	180.0	180.6	180.6	180.6	180.0	178.8	176.9	175.0
70°	149.4	151.9	153.8	155.0	155.6	155.6	154.4	153.1	153.1	152.5	151.3
72.5°	125.0	126.9	128.1	129.4	129.4	129.4	129.4	130.0	129.4	128.1	126.3
75°	101.9	103.8	105.0	105.6	105.6	105.6	105.6	106.3	105.6	105.0	103.8
77.5°	80.0	81.3	81.9	82.5	82.5	82.5	83.1	83.8	83.1	82.5	81.9
80°	59.4	60.0	60.6	61.3	60.6	60.6	61.3	62.5	61.9	61.3	60.6
82.5°	40.6	41.3	41.9	41.9	42.5	43.1	43.1	43.1	43.1	42.5	41.9
85°	24.4	25.0	25.0	25.0	25.0	25.0	25.6	26.3	26.3	25.6	25.6
87.5°	11.3	11.9	11.3	10.6	10.0	10.0	11.3	12.5	12.5	11.9	11.9
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°	552.5	552.5	552.5	552.5
2.5°	557.5	556.9	553.8	550.6
5°	559.4	557.5	553.1	548.8
7.5°	559.4	556.9	550.6	545.0
10°	556.3	552.5	545.6	538.8
12.5°	552.5	548.1	540.0	532.5
15°	546.9	541.9	533.1	524.4
17.5°	538.8	532.5	523.8	514.4
20°	530.6	523.8	513.1	503.1
22.5°	519.4	513.1	501.9	491.3
25°	506.9	500.0	488.8	477.5
27.5°	493.8	485.6	474.4	463.1
30°	478.8	470.6	459.4	448.1
32.5°	462.5	455.0	443.8	431.9
35°	446.3	438.1	426.9	415.0
37.5°	428.1	420.6	409.4	398.1
40°	408.8	401.3	390.0	378.8
42.5°	390.6	383.8	372.5	361.9
45°	370.6	363.8	353.1	343.1
47.5°	350.0	343.1	333.1	323.1
50°	330.0	323.1	313.8	304.4
52.5°	307.5	301.9	293.1	284.4
55°	285.6	280.0	271.3	263.1
57.5°	263.8	258.8	250.6	243.1
60°	240.6	235.6	229.4	222.5
62.5°	218.8	214.4	208.1	201.9
65°	195.6	191.9	186.3	180.6
67.5°	171.9	168.8	163.8	158.8
70°	148.1	144.4	140.6	136.3
72.5°	124.4	122.5	118.8	115.0
75°	101.9	100.0	96.9	93.8
77.5°	80.6	78.8	76.3	73.8
80°	59.4	58.1	56.3	54.4
82.5°	41.3	40.0	38.8	36.9
85°	25.0	23.8	22.5	21.3
87.5°	11.3	10.6	9.4	8.8
90°	0.0	0.0	0.0	0.0

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