

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P251591

Luminaire Tested: **LD4B10D010 EU4B10209040 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251591  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-1712-453-13)  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: io LED  
Catalog Number: LD4B10D010 EU4B10209040 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 827.0 lumens  
Efficiency: N/A  
Efficacy: 82.3 lumens/watt  
Spacing Criteria (0/90/45): 1.17 / 1.17 / 1.15  
Luminous Opening: Circular (Dia: 0.38' x H: 0')  
CIE Type: Direct

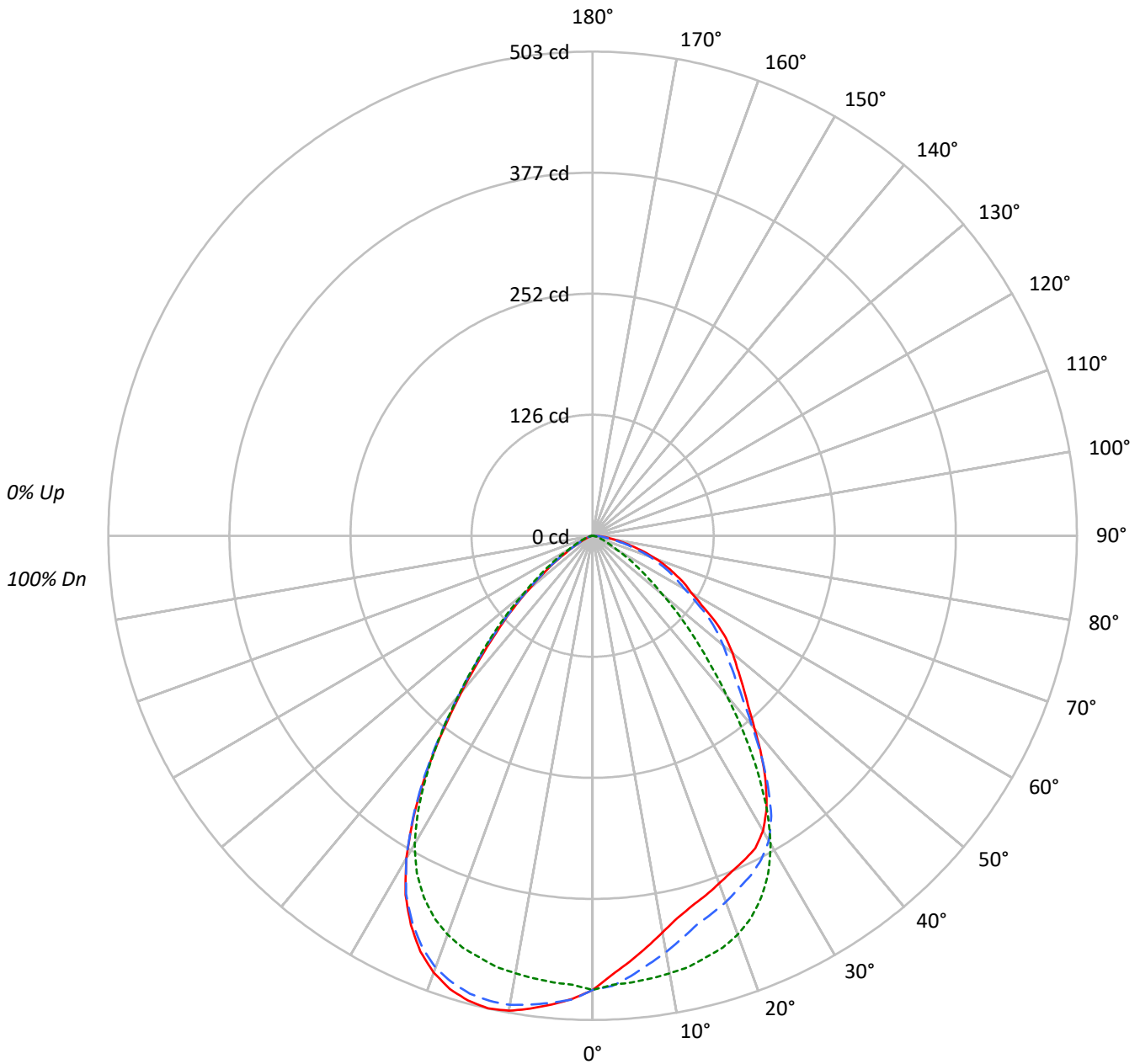
Input Watts (W): 10.05  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	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
1	111	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89			89
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79			79
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	72	70			70
4	90	80	72	67	88	78	72	66	76	70	66	74	69	65	72	68	64	62			62
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56			56
6	78	67	59	53	76	66	59	53	64	58	53	62	57	52	61	56	52	50			50
7	73	61	54	48	71	61	53	48	59	53	48	58	52	48	56	51	47	46			46
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42			42
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38			38
10	61	49	42	37	59	48	42	37	47	41	37	47	41	37	46	40	37	35			35

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	45981	45981	45981
5°	43417	45560	47819
10°	41396	45671	49580
15°	40177	45766	50428
20°	39846	45717	50062
25°	40013	44583	47992
30°	39815	41604	43517
35°	37322	35514	35883
40°	33256	27531	26920
45°	30418	20536	19268
50°	28762	14373	12994
55°	26438	9719	8156
60°	23117	5692	4503
65°	21861	3644	2514
70°	19918	2593	1567
75°	16493	1845	1130
80°	12965	1010	673
85°	11518	671	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	44.6	5.4
10°-20°	127.9	15.5
20°-30°	189.6	22.9
30°-40°	189.8	23.0
40°-50°	132.7	16.0
50°-60°	79.0	9.5
60°-70°	41.2	5.0
70°-80°	18.3	2.2
80°-90°	4.0	0.5
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°	362.0	43.8
0°-40°	551.9	66.7
0°-60°	763.5	92.3
0°-90°	827.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	827.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	472	472	472	472	472	
5°	444	459	466	487	489	42
15°	398	418	454	492	500	113
25°	372	389	415	443	446	171
35°	314	317	298	304	302	194
45°	221	210	149	144	140	171
55°	156	146	57	50	48	138
65°	95	87	16	12	11	94
75°	44	38	5	3	3	47
85°	10	8	1	1	0	12
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	456.6	462.1	456.6	458.4	465.7	459.0	462.7	462.7	460.8	465.1	468.1
5°	443.8	449.3	443.8	446.3	454.2	447.5	451.7	450.5	451.1	454.8	459.0
7.5°	431.1	435.3	430.5	433.5	440.8	435.3	439.0	439.0	439.6	445.0	448.7
10°	418.3	421.9	418.3	420.7	428.6	423.8	426.2	426.8	428.6	433.5	439.0
12.5°	406.7	409.8	406.1	409.8	416.5	411.6	414.6	415.3	417.1	422.5	428.6
15°	398.2	401.3	397.6	400.7	406.7	403.1	405.5	406.7	408.0	412.8	418.3
17.5°	391.5	394.0	390.9	394.6	399.4	395.2	398.8	398.8	400.7	405.5	411.6
20°	384.2	386.7	384.2	387.3	392.8	389.1	392.1	392.1	394.0	399.4	404.9
22.5°	377.6	378.8	377.6	380.0	385.5	382.4	384.2	384.9	386.7	391.5	396.4
25°	372.1	374.5	373.3	375.7	379.4	376.3	378.2	378.8	380.6	384.9	389.1
27.5°	366.0	367.2	366.0	369.0	372.1	369.7	371.5	370.9	372.1	375.7	379.4
30°	353.8	355.1	355.1	356.9	359.3	358.1	359.9	358.1	359.3	362.4	366.0
32.5°	336.2	336.8	337.4	339.3	341.1	339.3	340.5	340.5	340.5	342.9	345.3
35°	313.7	314.9	314.3	315.5	317.4	316.8	316.8	316.1	314.9	316.1	317.4
37.5°	288.2	286.4	286.4	288.2	289.4	287.0	288.2	287.0	287.0	287.6	287.6
40°	261.4	259.6	261.4	262.0	262.6	261.4	260.8	259.6	257.8	258.4	257.2
42.5°	238.9	237.7	238.3	238.3	238.9	237.7	238.3	235.9	234.1	232.9	231.0
45°	220.7	218.9	220.7	219.5	219.5	218.9	218.3	217.0	214.6	212.8	209.8
47.5°	203.7	203.7	204.3	204.3	204.3	203.1	203.1	200.6	198.2	195.8	191.5
50°	189.7	188.5	190.9	190.9	189.1	188.5	189.1	186.0	184.2	181.2	176.9
52.5°	174.5	174.5	175.1	175.1	174.5	173.3	173.9	171.5	169.6	166.6	162.3
55°	155.6	154.4	156.3	156.3	155.6	155.0	155.6	153.8	152.0	149.6	145.9
57.5°	134.4	133.8	135.0	135.6	134.4	134.4	135.0	133.1	132.5	130.1	126.5
60°	118.6	117.9	119.2	119.8	118.6	118.6	118.6	116.1	114.9	112.5	110.0
62.5°	107.6	107.0	108.2	107.6	107.0	106.4	107.0	104.6	103.4	100.9	98.5
65°	94.8	95.5	96.1	96.1	95.5	94.8	94.8	93.6	92.4	90.0	86.9
67.5°	82.7	82.7	83.3	83.9	83.3	83.3	83.3	81.5	80.3	78.4	74.8
70°	69.9	69.3	71.1	71.1	69.9	70.5	69.9	69.3	68.1	65.7	62.6
72.5°	56.5	56.5	57.2	57.2	56.5	56.5	56.5	55.9	54.1	52.9	49.9
75°	43.8	43.8	44.4	45.0	43.8	43.8	44.4	43.2	42.0	40.1	38.3
77.5°	32.8	32.2	32.8	32.8	32.2	32.2	32.2	31.6	31.0	29.2	27.4
80°	23.1	22.5	23.1	23.1	23.1	22.5	22.5	21.9	21.9	20.7	18.8
82.5°	15.8	15.2	15.8	15.8	15.8	15.2	15.2	15.2	14.6	14.0	12.8
85°	10.3	9.7	9.7	10.3	9.7	9.7	9.7	9.7	9.1	8.5	7.9
87.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.3	4.3	4.3	3.6
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):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	465.7	464.5	468.1	466.9	467.5	464.5	469.4	466.9	470.0	466.9	473.0
5°	457.8	456.6	462.1	461.5	462.1	459.6	465.1	464.5	468.1	465.7	472.4
7.5°	449.3	448.1	454.2	454.8	456.0	453.6	460.8	460.8	464.5	463.9	471.2
10°	439.6	440.2	446.3	447.5	449.9	448.7	455.4	457.2	462.1	461.5	470.6
12.5°	430.5	430.5	438.4	440.8	442.6	442.0	449.9	452.3	457.8	459.0	467.5
15°	421.3	421.9	429.2	432.9	435.3	434.7	443.2	446.3	452.9	453.6	463.9
17.5°	414.0	413.4	421.3	424.4	428.0	427.4	436.5	440.2	446.9	448.7	458.4
20°	408.0	407.3	414.6	418.3	420.7	420.1	429.2	433.5	439.6	440.8	450.5
22.5°	400.7	399.4	406.7	409.8	412.2	411.6	419.5	422.5	428.6	429.8	439.0
25°	392.1	390.9	397.6	399.4	401.3	400.1	406.7	408.6	413.4	414.6	423.8
27.5°	382.4	379.4	384.9	384.9	386.1	384.2	389.1	390.9	395.2	395.2	403.7
30°	367.2	363.0	366.0	365.4	366.0	363.6	366.6	367.2	370.3	369.7	375.7
32.5°	345.9	339.9	341.7	339.9	338.0	334.4	338.0	336.8	339.3	336.8	342.3
35°	316.8	310.7	310.1	307.6	305.8	302.8	302.8	299.7	300.3	298.5	302.2
37.5°	285.1	277.2	276.0	271.2	268.1	264.5	264.5	262.0	259.0	257.8	260.8
40°	254.1	245.6	242.6	234.7	231.6	228.0	225.6	222.5	221.3	216.4	218.9
42.5°	227.4	218.3	211.6	203.1	200.0	194.6	190.9	187.3	185.4	180.0	182.4
45°	204.9	193.9	186.7	175.7	171.5	165.4	159.9	155.6	151.4	149.0	147.7
47.5°	186.0	174.5	164.8	152.6	145.9	140.4	133.1	128.9	123.4	120.4	118.6
50°	170.2	157.5	146.5	132.5	125.9	119.8	111.3	104.6	99.7	94.8	93.6
52.5°	156.3	142.9	130.7	114.9	107.0	99.7	90.6	83.3	79.0	73.6	73.0
55°	139.8	128.3	114.9	98.5	90.6	83.3	73.6	66.3	60.8	57.2	55.9
57.5°	122.2	111.3	98.5	82.1	74.2	66.3	57.2	50.5	45.6	42.6	42.0
60°	105.8	95.5	83.3	66.9	59.0	52.3	42.6	35.9	31.6	29.2	28.0
62.5°	93.6	83.9	72.3	57.2	49.9	43.2	34.0	28.0	24.3	21.9	20.7
65°	82.1	72.3	62.0	48.0	42.0	35.9	27.4	21.9	18.2	15.8	14.6
67.5°	69.9	61.4	51.7	40.1	34.0	29.2	21.9	17.0	14.0	12.2	10.9
70°	57.8	49.9	42.0	32.2	28.0	23.1	17.0	13.4	10.3	9.1	7.9
72.5°	45.6	39.5	32.8	24.9	21.3	18.2	13.4	9.7	7.9	6.7	5.5
75°	34.0	29.8	24.3	18.8	15.8	13.4	9.7	7.3	6.1	4.9	4.3
77.5°	24.3	20.7	17.0	12.8	11.6	9.7	6.7	5.5	4.3	3.0	2.4
80°	16.4	14.6	11.6	9.1	7.3	6.7	4.9	3.6	2.4	1.8	1.8
82.5°	10.9	9.1	7.3	5.5	4.9	4.3	3.0	2.4	1.8	1.2	1.2
85°	6.7	5.5	4.3	3.0	3.0	2.4	1.8	1.2	0.6	0.6	0.6
87.5°	3.0	2.4	1.8	1.2	1.2	0.6	0.6	0.6	0.0	0.0	0.0
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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	477.9	474.2	471.8	474.8	476.0	474.2	476.0	479.1	482.1	482.7	474.2
5°	478.5	474.8	473.6	477.3	477.9	477.3	479.1	483.3	487.0	488.2	479.7
7.5°	478.5	476.0	475.4	479.7	480.3	479.7	482.7	487.6	491.2	493.7	485.2
10°	477.3	476.0	476.7	480.3	481.5	481.5	485.8	491.2	494.9	497.3	488.8
12.5°	475.4	475.4	475.4	479.7	480.9	481.5	485.2	492.5	494.9	498.5	490.0
15°	472.4	472.4	472.4	476.7	478.5	478.5	482.7	489.4	492.5	496.1	487.6
17.5°	466.9	466.9	467.5	471.2	473.0	473.0	477.3	484.6	486.4	490.6	482.1
20°	459.0	459.0	459.6	463.3	465.1	463.9	469.4	475.4	477.3	480.9	472.4
22.5°	447.5	447.5	447.5	451.1	452.3	451.7	457.2	462.7	462.7	467.5	458.4
25°	430.5	431.7	430.5	434.1	435.3	434.7	439.6	444.4	443.2	448.7	439.6
27.5°	409.8	409.2	409.2	412.2	412.2	411.6	415.3	420.7	419.5	423.2	414.6
30°	381.2	383.0	380.0	384.2	382.4	381.2	383.6	388.5	386.7	389.7	383.0
32.5°	348.4	345.9	345.9	345.9	347.2	344.1	346.5	349.0	347.2	350.2	342.9
35°	305.2	305.8	304.0	304.6	305.2	301.6	304.0	306.4	304.0	305.8	299.1
37.5°	262.0	262.6	258.4	260.8	258.4	257.2	259.6	260.8	258.4	260.2	252.9
40°	218.9	217.7	217.0	217.0	217.7	214.6	216.4	218.3	216.4	217.7	211.0
42.5°	181.2	180.6	179.4	180.0	178.1	177.5	178.1	180.0	178.1	179.4	174.5
45°	148.3	147.1	145.3	145.9	145.9	142.9	144.7	145.9	144.1	144.7	140.4
47.5°	117.9	116.1	116.1	115.5	115.5	114.3	116.1	115.5	113.7	114.9	110.7
50°	91.8	90.6	90.6	90.6	90.6	88.8	89.4	90.6	88.8	88.8	86.3
52.5°	71.7	69.9	68.7	68.7	68.7	68.1	68.1	68.7	66.9	66.9	66.3
55°	54.1	53.5	51.7	51.7	51.7	49.9	50.5	50.5	49.9	49.9	48.0
57.5°	40.1	38.3	37.1	37.1	35.9	35.9	35.3	35.9	34.7	34.7	33.4
60°	26.8	25.5	24.9	24.3	24.3	23.7	24.3	23.7	23.7	23.1	22.5
62.5°	19.5	18.2	17.0	17.0	17.0	16.4	16.4	16.4	16.4	16.4	15.8
65°	14.0	12.8	12.8	12.2	12.2	11.6	11.6	11.6	11.6	11.6	10.9
67.5°	9.7	9.1	8.5	8.5	8.5	8.5	8.5	8.5	7.9	7.9	7.9
70°	7.3	6.7	6.1	6.1	6.1	6.1	6.1	5.5	6.1	6.1	5.5
72.5°	4.9	4.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
75°	3.6	3.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	2.4	2.4	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	1.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
85°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	471.8	471.8	471.8	471.8	471.8	471.8	471.8	471.8
2.5°	483.3	482.7	481.5	483.3	478.5	476.7	476.0	481.5
5°	490.0	488.8	488.8	490.6	485.2	484.0	482.7	488.8
7.5°	496.1	494.9	494.9	496.7	491.9	490.6	489.4	495.5
10°	499.8	499.8	499.8	501.0	496.7	495.5	494.9	501.0
12.5°	501.6	501.6	501.0	503.4	497.9	497.9	496.7	502.8
15°	499.2	499.2	499.2	501.0	496.1	494.9	494.9	499.8
17.5°	493.1	493.1	492.5	494.3	488.8	488.8	488.2	493.7
20°	484.0	484.0	482.7	485.2	479.7	477.9	477.3	482.7
22.5°	469.4	468.8	468.1	469.4	464.5	463.3	462.7	467.5
25°	450.5	449.9	448.7	449.9	444.4	442.6	442.6	446.3
27.5°	423.8	423.8	421.9	423.8	417.7	417.1	416.5	420.7
30°	390.9	388.5	387.3	389.7	383.6	383.6	382.4	386.7
32.5°	350.2	347.8	347.2	348.4	342.9	341.1	343.5	345.9
35°	303.4	304.0	301.6	301.6	296.7	297.3	297.9	301.6
37.5°	258.4	257.2	256.6	257.2	253.5	252.3	251.1	254.7
40°	216.4	213.4	212.8	212.8	209.8	209.1	209.8	211.6
42.5°	176.9	176.3	173.9	175.1	172.1	173.3	172.7	172.7
45°	142.9	143.5	141.1	142.9	140.4	138.6	138.6	139.8
47.5°	113.1	113.1	112.5	112.5	110.7	111.3	110.0	111.9
50°	87.5	87.5	86.3	86.9	85.7	85.7	85.1	85.7
52.5°	66.9	66.3	66.3	65.7	64.4	65.1	65.7	64.4
55°	48.6	49.2	48.0	48.6	47.4	48.0	47.4	48.0
57.5°	33.4	34.0	32.8	34.0	32.8	33.4	32.8	32.8
60°	23.1	23.1	22.5	23.1	22.5	22.5	21.9	23.1
62.5°	15.8	15.8	15.8	15.8	15.8	15.2	15.8	15.8
65°	11.6	10.9	10.9	10.9	10.9	10.9	10.9	10.9
67.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
70°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
72.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
75°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
82.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
85°	0.6	0.6	0.6	0.0	0.6	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180°    - - 45°-225°    - - - - 90°-270°















(END OF REPORT)