

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: P251589

Luminaire Tested: **LD4B10D010 EU4B10209030 4LBSW1H**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P251589  
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 EU4B10209030 4LBSW1H  
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 814.0 lumens  
Efficiency: N/A  
Efficacy: 81.0 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

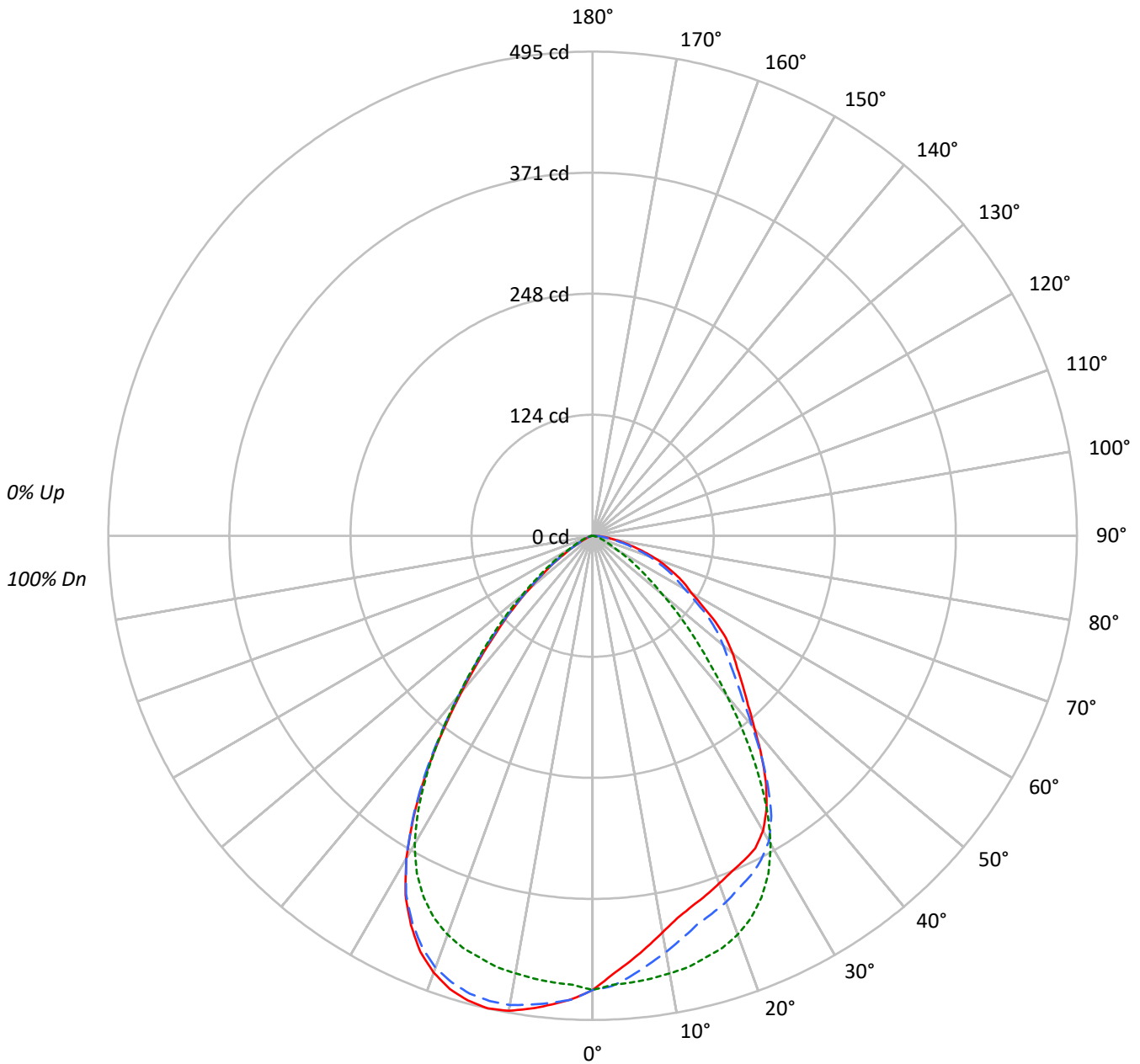
Input Watts (W): 10.05  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
RC	80									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																			
1	111	108	104	101	109	106	103	100	101	99	97	98	96	94	94	93	91	89																			
2	104	97	92	87	101	95	90	86	92	88	84	89	85	82	86	83	81	79																			
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	72	70																			
4	90	80	72	67	88	78	72	66	76	70	66	74	69	65	72	68	64	62																			
5	83	73	65	60	82	72	65	59	70	63	59	68	62	58	66	61	58	56																			
6	78	67	59	53	76	66	59	53	64	58	53	62	57	52	61	56	52	50																			
7	73	61	54	48	71	61	53	48	59	53	48	58	52	48	56	51	47	46																			
8	68	57	49	44	67	56	49	44	55	48	44	54	48	43	52	47	43	42																			
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	44	40	38																			
10	61	49	42	37	59	48	42	37	47	41	37	47	41	37	46	40	37	35																			

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

	0°	90°	180°
0°	45260	45260	45260
5°	42732	44845	47066
10°	40742	44948	48798
15°	39551	45040	49631
20°	39224	45001	49274
25°	39379	43884	47229
30°	39196	40940	42831
35°	36739	34955	35312
40°	32734	27098	26500
45°	29936	20205	18965
50°	28307	14161	12797
55°	26031	9566	8037
60°	22747	5594	4425
65°	21539	3597	2491
70°	19604	2565	1539
75°	16229	1807	1130
80°	12740	1010	673
85°	11406	671	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	43.9	5.4
10°-20°	125.9	15.5
20°-30°	186.6	22.9
30°-40°	186.8	23.0
40°-50°	130.6	16.0
50°-60°	77.7	9.5
60°-70°	40.6	5.0
70°-80°	18.0	2.2
80°-90°	3.9	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°	356.3	43.8
0°-40°	543.2	66.7
0°-60°	751.5	92.3
0°-90°	814.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	814.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	464	464	464	464	464	
5°	437	452	458	479	481	41
15°	392	412	446	485	492	111
25°	366	383	408	436	439	169
35°	309	312	294	299	297	191
45°	217	206	147	142	138	169
55°	153	144	56	49	47	136
65°	93	86	16	11	11	92
75°	43	38	5	3	3	47
85°	10	8	1	1	0	11
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°	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4
2.5°	449.4	454.8	449.4	451.2	458.4	451.8	455.4	455.4	453.6	457.8	460.8
5°	436.8	442.2	436.8	439.2	447.0	440.4	444.6	443.4	444.0	447.6	451.8
7.5°	424.3	428.5	423.7	426.7	433.9	428.5	432.1	432.1	432.7	438.0	441.6
10°	411.7	415.3	411.7	414.1	421.9	417.1	419.5	420.1	421.9	426.7	432.1
12.5°	400.3	403.3	399.7	403.3	409.9	405.1	408.1	408.7	410.5	415.9	421.9
15°	392.0	395.0	391.4	394.4	400.3	396.8	399.1	400.3	401.5	406.3	411.7
17.5°	385.4	387.8	384.8	388.4	393.2	389.0	392.6	392.6	394.4	399.1	405.1
20°	378.2	380.6	378.2	381.2	386.6	383.0	386.0	386.0	387.8	393.2	398.6
22.5°	371.6	372.8	371.6	374.0	379.4	376.4	378.2	378.8	380.6	385.4	390.2
25°	366.2	368.6	367.4	369.8	373.4	370.4	372.2	372.8	374.6	378.8	383.0
27.5°	360.3	361.4	360.3	363.2	366.2	363.8	365.6	365.0	366.2	369.8	373.4
30°	348.3	349.5	349.5	351.3	353.7	352.5	354.3	352.5	353.7	356.7	360.3
32.5°	330.9	331.5	332.1	333.9	335.7	333.9	335.1	335.1	335.1	337.5	339.9
35°	308.8	310.0	309.4	310.6	312.4	311.8	311.8	311.2	310.0	311.2	312.4
37.5°	283.7	281.9	281.9	283.7	284.8	282.5	283.7	282.5	282.5	283.1	283.1
40°	257.3	255.5	257.3	257.9	258.5	257.3	256.7	255.5	253.7	254.3	253.1
42.5°	235.2	234.0	234.6	234.6	235.2	234.0	234.6	232.2	230.4	229.2	227.4
45°	217.2	215.4	217.2	216.0	216.0	215.4	214.8	213.6	211.2	209.4	206.5
47.5°	200.5	200.5	201.1	201.1	201.1	199.9	199.9	197.5	195.1	192.7	188.5
50°	186.7	185.5	187.9	187.9	186.1	185.5	186.1	183.1	181.3	178.3	174.1
52.5°	171.7	171.7	172.3	172.3	171.7	170.6	171.1	168.8	167.0	164.0	159.8
55°	153.2	152.0	153.8	153.8	153.2	152.6	153.2	151.4	149.6	147.2	143.6
57.5°	132.3	131.7	132.9	133.4	132.3	132.3	132.9	131.1	130.5	128.1	124.5
60°	116.7	116.1	117.3	117.9	116.7	116.7	116.7	114.3	113.1	110.7	108.3
62.5°	105.9	105.3	106.5	105.9	105.3	104.7	105.3	102.9	101.7	99.3	96.9
65°	93.4	94.0	94.6	94.6	94.0	93.4	93.4	92.2	91.0	88.6	85.6
67.5°	81.4	81.4	82.0	82.6	82.0	82.0	82.0	80.2	79.0	77.2	73.6
70°	68.8	68.2	70.0	70.0	68.8	69.4	68.8	68.2	67.0	64.6	61.6
72.5°	55.7	55.7	56.3	56.3	55.7	55.7	55.7	55.1	53.3	52.1	49.1
75°	43.1	43.1	43.7	44.3	43.1	43.1	43.7	42.5	41.3	39.5	37.7
77.5°	32.3	31.7	32.3	32.3	31.7	31.7	31.7	31.1	30.5	28.7	26.9
80°	22.7	22.1	22.7	22.7	22.7	22.1	22.1	21.5	21.5	20.3	18.6
82.5°	15.6	15.0	15.6	15.6	15.6	15.0	15.0	15.0	14.4	13.8	12.6
85°	10.2	9.6	9.6	10.2	9.6	9.6	9.6	9.6	9.0	8.4	7.8
87.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.2	4.2	4.2	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°	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4
2.5°	458.4	457.2	460.8	459.6	460.2	457.2	462.0	459.6	462.6	459.6	465.6
5°	450.6	449.4	454.8	454.2	454.8	452.4	457.8	457.2	460.8	458.4	465.0
7.5°	442.2	441.0	447.0	447.6	448.8	446.4	453.6	453.6	457.2	456.6	463.8
10°	432.7	433.3	439.2	440.4	442.8	441.6	448.2	450.0	454.8	454.2	463.2
12.5°	423.7	423.7	431.5	433.9	435.7	435.1	442.8	445.2	450.6	451.8	460.2
15°	414.7	415.3	422.5	426.1	428.5	427.9	436.3	439.2	445.8	446.4	456.6
17.5°	407.5	406.9	414.7	417.7	421.3	420.7	429.7	433.3	439.8	441.6	451.2
20°	401.5	400.9	408.1	411.7	414.1	413.5	422.5	426.7	432.7	433.9	443.4
22.5°	394.4	393.2	400.3	403.3	405.7	405.1	412.9	415.9	421.9	423.1	432.1
25°	386.0	384.8	391.4	393.2	395.0	393.8	400.3	402.1	406.9	408.1	417.1
27.5°	376.4	373.4	378.8	378.8	380.0	378.2	383.0	384.8	389.0	389.0	397.4
30°	361.4	357.3	360.3	359.7	360.3	357.9	360.8	361.4	364.4	363.8	369.8
32.5°	340.5	334.5	336.3	334.5	332.7	329.1	332.7	331.5	333.9	331.5	336.9
35°	311.8	305.8	305.2	302.8	301.0	298.0	298.0	295.0	295.6	293.8	297.4
37.5°	280.7	272.9	271.7	266.9	263.9	260.3	260.3	257.9	254.9	253.7	256.7
40°	250.1	241.8	238.8	231.0	228.0	224.4	222.0	219.0	217.8	213.0	215.4
42.5°	223.8	214.8	208.3	199.9	196.9	191.5	187.9	184.3	182.5	177.1	179.5
45°	201.7	190.9	183.7	172.9	168.8	162.8	157.4	153.2	149.0	146.6	145.4
47.5°	183.1	171.7	162.2	150.2	143.6	138.2	131.1	126.9	121.5	118.5	116.7
50°	167.6	155.0	144.2	130.5	123.9	117.9	109.5	102.9	98.1	93.4	92.2
52.5°	153.8	140.6	128.7	113.1	105.3	98.1	89.2	82.0	77.8	72.4	71.8
55°	137.6	126.3	113.1	96.9	89.2	82.0	72.4	65.2	59.8	56.3	55.1
57.5°	120.3	109.5	96.9	80.8	73.0	65.2	56.3	49.7	44.9	41.9	41.3
60°	104.1	94.0	82.0	65.8	58.0	51.5	41.9	35.3	31.1	28.7	27.5
62.5°	92.2	82.6	71.2	56.3	49.1	42.5	33.5	27.5	23.9	21.5	20.3
65°	80.8	71.2	61.0	47.3	41.3	35.3	26.9	21.5	18.0	15.6	14.4
67.5°	68.8	60.4	50.9	39.5	33.5	28.7	21.5	16.8	13.8	12.0	10.8
70°	56.9	49.1	41.3	31.7	27.5	22.7	16.8	13.2	10.2	9.0	7.8
72.5°	44.9	38.9	32.3	24.5	20.9	18.0	13.2	9.6	7.8	6.6	5.4
75°	33.5	29.3	23.9	18.6	15.6	13.2	9.6	7.2	6.0	4.8	4.2
77.5°	23.9	20.3	16.8	12.6	11.4	9.6	6.6	5.4	4.2	3.0	2.4
80°	16.2	14.4	11.4	9.0	7.2	6.6	4.8	3.6	2.4	1.8	1.8
82.5°	10.8	9.0	7.2	5.4	4.8	4.2	3.0	2.4	1.8	1.2	1.2
85°	6.6	5.4	4.2	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°	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4
2.5°	470.4	466.8	464.4	467.4	468.6	466.8	468.6	471.6	474.5	475.1	466.8
5°	471.0	467.4	466.2	469.8	470.4	469.8	471.6	475.7	479.3	480.5	472.2
7.5°	471.0	468.6	468.0	472.2	472.8	472.2	475.1	479.9	483.5	485.9	477.5
10°	469.8	468.6	469.2	472.8	474.0	474.0	478.1	483.5	487.1	489.5	481.1
12.5°	468.0	468.0	468.0	472.2	473.4	474.0	477.5	484.7	487.1	490.7	482.3
15°	465.0	465.0	465.0	469.2	471.0	471.0	475.1	481.7	484.7	488.3	479.9
17.5°	459.6	459.6	460.2	463.8	465.6	465.6	469.8	476.9	478.7	482.9	474.5
20°	451.8	451.8	452.4	456.0	457.8	456.6	462.0	468.0	469.8	473.4	465.0
22.5°	440.4	440.4	440.4	444.0	445.2	444.6	450.0	455.4	455.4	460.2	451.2
25°	423.7	424.9	423.7	427.3	428.5	427.9	432.7	437.4	436.3	441.6	432.7
27.5°	403.3	402.7	402.7	405.7	405.7	405.1	408.7	414.1	412.9	416.5	408.1
30°	375.2	377.0	374.0	378.2	376.4	375.2	377.6	382.4	380.6	383.6	377.0
32.5°	342.9	340.5	340.5	340.5	341.7	338.7	341.1	343.5	341.7	344.7	337.5
35°	300.4	301.0	299.2	299.8	300.4	296.8	299.2	301.6	299.2	301.0	294.4
37.5°	257.9	258.5	254.3	256.7	254.3	253.1	255.5	256.7	254.3	256.1	248.9
40°	215.4	214.2	213.6	213.6	214.2	211.2	213.0	214.8	213.0	214.2	207.7
42.5°	178.3	177.7	176.5	177.1	175.3	174.7	175.3	177.1	175.3	176.5	171.7
45°	146.0	144.8	143.0	143.6	143.6	140.6	142.4	143.6	141.8	142.4	138.2
47.5°	116.1	114.3	114.3	113.7	113.7	112.5	114.3	113.7	111.9	113.1	108.9
50°	90.4	89.2	89.2	89.2	89.2	87.4	88.0	89.2	87.4	87.4	85.0
52.5°	70.6	68.8	67.6	67.6	67.6	67.0	67.0	67.6	65.8	65.8	65.2
55°	53.3	52.7	50.9	50.9	50.9	49.1	49.7	49.7	49.1	49.1	47.3
57.5°	39.5	37.7	36.5	36.5	35.3	35.3	34.7	35.3	34.1	34.1	32.9
60°	26.3	25.1	24.5	23.9	23.9	23.3	23.9	23.3	23.3	22.7	22.1
62.5°	19.1	18.0	16.8	16.8	16.8	16.2	16.2	16.2	16.2	16.2	15.6
65°	13.8	12.6	12.6	12.0	12.0	11.4	11.4	11.4	11.4	11.4	10.8
67.5°	9.6	9.0	8.4	8.4	8.4	8.4	8.4	8.4	7.8	7.8	7.8
70°	7.2	6.6	6.0	6.0	6.0	6.0	6.0	5.4	6.0	6.0	5.4
72.5°	4.8	4.8	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
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°	464.4	464.4	464.4	464.4	464.4	464.4	464.4	464.4
2.5°	475.7	475.1	474.0	475.7	471.0	469.2	468.6	474.0
5°	482.3	481.1	481.1	482.9	477.5	476.3	475.1	481.1
7.5°	488.3	487.1	487.1	488.9	484.1	482.9	481.7	487.7
10°	491.9	491.9	491.9	493.1	488.9	487.7	487.1	493.1
12.5°	493.7	493.7	493.1	495.5	490.1	490.1	488.9	494.9
15°	491.3	491.3	491.3	493.1	488.3	487.1	487.1	491.9
17.5°	485.3	485.3	484.7	486.5	481.1	481.1	480.5	485.9
20°	476.3	476.3	475.1	477.5	472.2	470.4	469.8	475.1
22.5°	462.0	461.4	460.8	462.0	457.2	456.0	455.4	460.2
25°	443.4	442.8	441.6	442.8	437.4	435.7	435.7	439.2
27.5°	417.1	417.1	415.3	417.1	411.1	410.5	409.9	414.1
30°	384.8	382.4	381.2	383.6	377.6	377.6	376.4	380.6
32.5°	344.7	342.3	341.7	342.9	337.5	335.7	338.1	340.5
35°	298.6	299.2	296.8	296.8	292.0	292.6	293.2	296.8
37.5°	254.3	253.1	252.5	253.1	249.5	248.3	247.1	250.7
40°	213.0	210.0	209.4	209.4	206.5	205.9	206.5	208.3
42.5°	174.1	173.5	171.1	172.3	169.4	170.6	170.0	170.0
45°	140.6	141.2	138.8	140.6	138.2	136.4	136.4	137.6
47.5°	111.3	111.3	110.7	110.7	108.9	109.5	108.3	110.1
50°	86.2	86.2	85.0	85.6	84.4	84.4	83.8	84.4
52.5°	65.8	65.2	65.2	64.6	63.4	64.0	64.6	63.4
55°	47.9	48.5	47.3	47.9	46.7	47.3	46.7	47.3
57.5°	32.9	33.5	32.3	33.5	32.3	32.9	32.3	32.3
60°	22.7	22.7	22.1	22.7	22.1	22.1	21.5	22.7
62.5°	15.6	15.6	15.6	15.6	15.6	15.0	15.6	15.6
65°	11.4	10.8	10.8	10.8	10.8	10.8	10.8	10.8
67.5°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
70°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
72.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
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)