

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: P251603

Luminaire Tested: **LD4B15D010 EU4B10209035 4LBSW1H**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P251603
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: LD4B15D010 EU4B10209035 4LBSW1H
Description: PORTFOLIO 4 INCH SINGLE WALLWASH RECESSED DOWNLIGHT, WITH HAZE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1149.0 lumens
Efficiency: N/A
Efficacy: 79.8 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

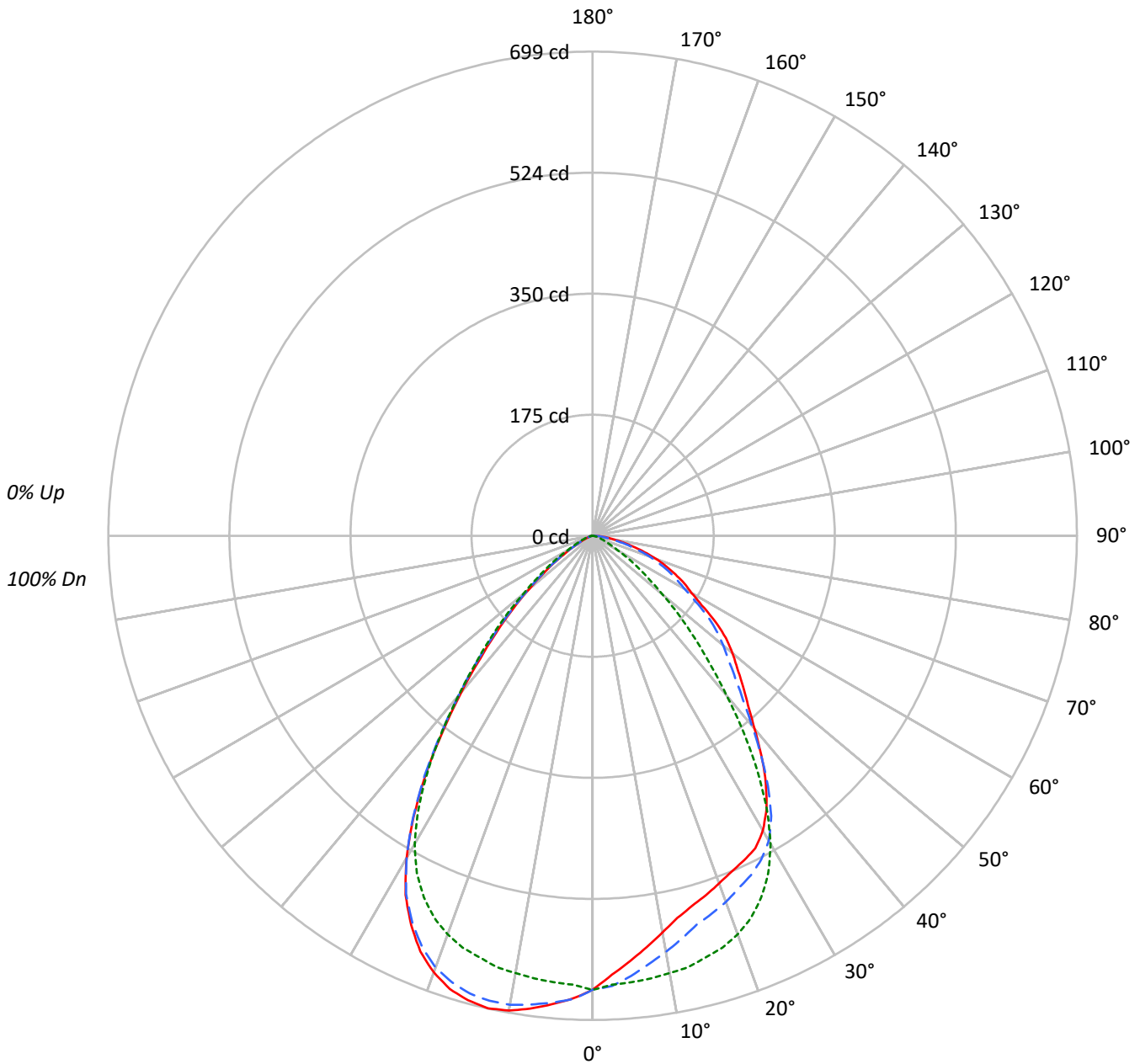
Input Watts (W): 14.39
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	63884	63884	63884
5°	60322	63296	66437
10°	57516	63444	68877
15°	55826	63575	70052
20°	55372	63514	69560
25°	55595	61950	66671
30°	55322	57798	60454
35°	51861	49339	49850
40°	46207	38256	37403
45°	42258	28530	26780
50°	39951	19983	18058
55°	36735	13491	11333
60°	32103	7894	6257
65°	30394	5073	3505
70°	27668	3619	2166
75°	22894	2561	1582
80°	18016	1403	954
85°	16102	895	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.9	5.4
10°-20°	177.7	15.5
20°-30°	263.4	22.9
30°-40°	263.7	23.0
40°-50°	184.3	16.0
50°-60°	109.7	9.5
60°-70°	57.2	5.0
70°-80°	25.4	2.2
80°-90°	5.5	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°	503.0	43.8
0°-40°	766.7	66.7
0°-60°	1060.8	92.3
0°-90°	1149.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1149.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	656	656	656	656	656	
5°	617	638	647	677	679	58
15°	553	581	630	684	694	157
25°	517	541	576	616	620	238
35°	436	441	415	422	419	270
45°	307	291	207	200	194	238
55°	216	203	79	69	67	192
65°	132	121	22	16	15	130
75°	61	53	7	4	4	66
85°	14	11	1	1	0	16
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°	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5
2.5°	634.4	642.0	634.4	636.9	647.0	637.8	642.8	642.8	640.3	646.2	650.4
5°	616.6	624.2	616.6	620.0	631.0	621.7	627.6	625.9	626.8	631.8	637.8
7.5°	598.9	604.8	598.0	602.3	612.4	604.8	609.9	609.9	610.7	618.3	623.4
10°	581.2	586.2	581.2	584.5	595.5	588.8	592.1	593.0	595.5	602.3	609.9
12.5°	565.1	569.3	564.3	569.3	578.6	571.9	576.1	576.9	579.5	587.1	595.5
15°	553.3	557.5	552.4	556.7	565.1	560.0	563.4	565.1	566.8	573.6	581.2
17.5°	544.0	547.4	543.1	548.2	555.0	549.1	554.1	554.1	556.7	563.4	571.9
20°	533.9	537.2	533.9	538.1	545.7	540.6	544.8	544.8	547.4	555.0	562.6
22.5°	524.6	526.3	524.6	527.9	535.5	531.3	533.9	534.7	537.2	544.0	550.7
25°	517.0	520.3	518.6	522.0	527.1	522.9	525.4	526.3	528.8	534.7	540.6
27.5°	508.5	510.2	508.5	512.7	517.0	513.6	516.1	515.3	517.0	522.0	527.1
30°	491.6	493.3	493.3	495.8	499.2	497.5	500.1	497.5	499.2	503.4	508.5
32.5°	467.1	468.0	468.8	471.3	473.9	471.3	473.0	473.0	473.0	476.4	479.8
35°	435.9	437.6	436.7	438.4	440.9	440.1	440.1	439.2	437.6	439.2	440.9
37.5°	400.4	397.9	397.9	400.4	402.1	398.7	400.4	398.7	398.7	399.5	399.5
40°	363.2	360.7	363.2	364.1	364.9	363.2	362.4	360.7	358.2	359.0	357.3
42.5°	332.0	330.3	331.1	331.1	332.0	330.3	331.1	327.7	325.2	323.5	321.0
45°	306.6	304.1	306.6	304.9	304.9	304.1	303.2	301.6	298.2	295.6	291.4
47.5°	283.0	283.0	283.8	283.8	283.8	282.1	282.1	278.8	275.4	272.0	266.1
50°	263.5	261.9	265.2	265.2	262.7	261.9	262.7	258.5	255.9	251.7	245.8
52.5°	242.4	242.4	243.3	243.3	242.4	240.7	241.6	238.2	235.7	231.4	225.5
55°	216.2	214.6	217.1	217.1	216.2	215.4	216.2	213.7	211.2	207.8	202.7
57.5°	186.7	185.8	187.5	188.4	186.7	186.7	187.5	185.0	184.1	180.8	175.7
60°	164.7	163.9	165.6	166.4	164.7	164.7	164.7	161.3	159.6	156.3	152.9
62.5°	149.5	148.7	150.4	149.5	148.7	147.8	148.7	145.3	143.6	140.2	136.8
65°	131.8	132.6	133.5	133.5	132.6	131.8	131.8	130.1	128.4	125.0	120.8
67.5°	114.9	114.9	115.7	116.6	115.7	115.7	115.7	113.2	111.5	109.0	103.9
70°	97.1	96.3	98.8	98.8	97.1	98.0	97.1	96.3	94.6	91.2	87.0
72.5°	78.6	78.6	79.4	79.4	78.6	78.6	78.6	77.7	75.2	73.5	69.3
75°	60.8	60.8	61.7	62.5	60.8	60.8	61.7	60.0	58.3	55.8	53.2
77.5°	45.6	44.8	45.6	45.6	44.8	44.8	44.8	43.9	43.1	40.5	38.0
80°	32.1	31.3	32.1	32.1	32.1	31.3	31.3	30.4	30.4	28.7	26.2
82.5°	22.0	21.1	22.0	22.0	22.0	21.1	21.1	21.1	20.3	19.4	17.7
85°	14.4	13.5	13.5	14.4	13.5	13.5	13.5	13.5	12.7	11.8	11.0
87.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.9	5.9	5.9	5.1
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5
2.5°	647.0	645.4	650.4	648.7	649.6	645.4	652.1	648.7	653.0	648.7	657.2
5°	636.1	634.4	642.0	641.1	642.0	638.6	646.2	645.4	650.4	647.0	656.3
7.5°	624.2	622.5	631.0	631.8	633.5	630.1	640.3	640.3	645.4	644.5	654.6
10°	610.7	611.6	620.0	621.7	625.1	623.4	632.7	635.2	642.0	641.1	653.8
12.5°	598.0	598.0	609.0	612.4	614.9	614.1	625.1	628.5	636.1	637.8	649.6
15°	585.4	586.2	596.4	601.4	604.8	604.0	615.8	620.0	629.3	630.1	644.5
17.5°	575.2	574.4	585.4	589.6	594.7	593.8	606.5	611.6	620.9	623.4	636.9
20°	566.8	566.0	576.1	581.2	584.5	583.7	596.4	602.3	610.7	612.4	625.9
22.5°	556.7	555.0	565.1	569.3	572.7	571.9	582.8	587.1	595.5	597.2	609.9
25°	544.8	543.1	552.4	555.0	557.5	555.8	565.1	567.6	574.4	576.1	588.8
27.5°	531.3	527.1	534.7	534.7	536.4	533.9	540.6	543.1	549.1	549.1	560.9
30°	510.2	504.3	508.5	507.7	508.5	505.1	509.4	510.2	514.4	513.6	522.0
32.5°	480.6	472.2	474.7	472.2	469.7	464.6	469.7	468.0	471.3	468.0	475.6
35°	440.1	431.6	430.8	427.4	424.9	420.7	420.7	416.4	417.3	414.7	419.8
37.5°	396.2	385.2	383.5	376.7	372.5	367.4	367.4	364.1	359.8	358.2	362.4
40°	353.1	341.3	337.0	326.1	321.8	316.8	313.4	309.2	307.5	300.7	304.1
42.5°	315.9	303.2	294.0	282.1	277.9	270.3	265.2	260.2	257.6	250.0	253.4
45°	284.7	269.5	259.3	244.1	238.2	229.8	222.2	216.2	210.3	207.0	205.3
47.5°	258.5	242.4	228.9	212.0	202.7	195.1	185.0	179.1	171.5	167.3	164.7
50°	236.5	218.8	203.6	184.1	174.9	166.4	154.6	145.3	138.5	131.8	130.1
52.5°	217.1	198.5	181.6	159.6	148.7	138.5	125.9	115.7	109.8	102.2	101.4
55°	194.3	178.2	159.6	136.8	125.9	115.7	102.2	92.1	84.5	79.4	77.7
57.5°	169.8	154.6	136.8	114.0	103.1	92.1	79.4	70.1	63.4	59.1	58.3
60°	147.0	132.6	115.7	92.9	81.9	72.6	59.1	49.8	43.9	40.5	38.9
62.5°	130.1	116.6	100.5	79.4	69.3	60.0	47.3	38.9	33.8	30.4	28.7
65°	114.0	100.5	86.2	66.7	58.3	49.8	38.0	30.4	25.3	22.0	20.3
67.5°	97.1	85.3	71.8	55.8	47.3	40.5	30.4	23.7	19.4	16.9	15.2
70°	80.2	69.3	58.3	44.8	38.9	32.1	23.7	18.6	14.4	12.7	11.0
72.5°	63.4	54.9	45.6	34.6	29.6	25.3	18.6	13.5	11.0	9.3	7.6
75°	47.3	41.4	33.8	26.2	22.0	18.6	13.5	10.1	8.4	6.8	5.9
77.5°	33.8	28.7	23.7	17.7	16.0	13.5	9.3	7.6	5.9	4.2	3.4
80°	22.8	20.3	16.0	12.7	10.1	9.3	6.8	5.1	3.4	2.5	2.5
82.5°	15.2	12.7	10.1	7.6	6.8	5.9	4.2	3.4	2.5	1.7	1.7
85°	9.3	7.6	5.9	4.2	4.2	3.4	2.5	1.7	0.8	0.8	0.8
87.5°	4.2	3.4	2.5	1.7	1.7	0.8	0.8	0.8	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°	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5
2.5°	663.9	658.9	655.5	659.7	661.4	658.9	661.4	665.6	669.8	670.7	658.9
5°	664.8	659.7	658.0	663.1	663.9	663.1	665.6	671.5	676.6	678.3	666.5
7.5°	664.8	661.4	660.6	666.5	667.3	666.5	670.7	677.5	682.5	685.9	674.1
10°	663.1	661.4	662.2	667.3	669.0	669.0	674.9	682.5	687.6	691.0	679.1
12.5°	660.6	660.6	660.6	666.5	668.2	669.0	674.1	684.2	687.6	692.7	680.8
15°	656.3	656.3	656.3	662.2	664.8	664.8	670.7	680.0	684.2	689.3	677.5
17.5°	648.7	648.7	649.6	654.6	657.2	657.2	663.1	673.2	675.8	681.7	669.8
20°	637.8	637.8	638.6	643.7	646.2	644.5	652.1	660.6	663.1	668.2	656.3
22.5°	621.7	621.7	621.7	626.8	628.5	627.6	635.2	642.8	642.8	649.6	636.9
25°	598.0	599.7	598.0	603.1	604.8	604.0	610.7	617.5	615.8	623.4	610.7
27.5°	569.3	568.5	568.5	572.7	572.7	571.9	576.9	584.5	582.8	587.9	576.1
30°	529.6	532.2	527.9	533.9	531.3	529.6	533.0	539.8	537.2	541.5	532.2
32.5°	484.0	480.6	480.6	480.6	482.3	478.1	481.5	484.9	482.3	486.5	476.4
35°	424.0	424.9	422.4	423.2	424.0	419.0	422.4	425.7	422.4	424.9	415.6
37.5°	364.1	364.9	359.0	362.4	359.0	357.3	360.7	362.4	359.0	361.5	351.4
40°	304.1	302.4	301.6	301.6	302.4	298.2	300.7	303.2	300.7	302.4	293.1
42.5°	251.7	250.9	249.2	250.0	247.5	246.7	247.5	250.0	247.5	249.2	242.4
45°	206.1	204.4	201.9	202.7	202.7	198.5	201.0	202.7	200.2	201.0	195.1
47.5°	163.9	161.3	161.3	160.5	160.5	158.8	161.3	160.5	158.0	159.6	153.7
50°	127.6	125.9	125.9	125.9	125.9	123.3	124.2	125.9	123.3	123.3	119.9
52.5°	99.7	97.1	95.5	95.5	95.5	94.6	94.6	95.5	92.9	92.9	92.1
55°	75.2	74.3	71.8	71.8	71.8	69.3	70.1	70.1	69.3	69.3	66.7
57.5°	55.8	53.2	51.5	51.5	49.8	49.8	49.0	49.8	48.1	48.1	46.5
60°	37.2	35.5	34.6	33.8	33.8	32.9	33.8	32.9	32.9	32.1	31.3
62.5°	27.0	25.3	23.7	23.7	23.7	22.8	22.8	22.8	22.8	22.8	22.0
65°	19.4	17.7	17.7	16.9	16.9	16.0	16.0	16.0	16.0	16.0	15.2
67.5°	13.5	12.7	11.8	11.8	11.8	11.8	11.8	11.8	11.0	11.0	11.0
70°	10.1	9.3	8.4	8.4	8.4	8.4	8.4	7.6	8.4	8.4	7.6
72.5°	6.8	6.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
75°	5.1	5.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
77.5°	3.4	3.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
80°	2.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	1.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	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°	655.5	655.5	655.5	655.5	655.5	655.5	655.5	655.5
2.5°	671.5	670.7	669.0	671.5	664.8	662.2	661.4	669.0
5°	680.8	679.1	679.1	681.7	674.1	672.4	670.7	679.1
7.5°	689.3	687.6	687.6	690.1	683.4	681.7	680.0	688.4
10°	694.3	694.3	694.3	696.0	690.1	688.4	687.6	696.0
12.5°	696.9	696.9	696.0	699.4	691.8	691.8	690.1	698.6
15°	693.5	693.5	693.5	696.0	689.3	687.6	687.6	694.3
17.5°	685.1	685.1	684.2	686.7	679.1	679.1	678.3	685.9
20°	672.4	672.4	670.7	674.1	666.5	663.9	663.1	670.7
22.5°	652.1	651.3	650.4	652.1	645.4	643.7	642.8	649.6
25°	625.9	625.1	623.4	625.1	617.5	614.9	614.9	620.0
27.5°	588.8	588.8	586.2	588.8	580.3	579.5	578.6	584.5
30°	543.1	539.8	538.1	541.5	533.0	533.0	531.3	537.2
32.5°	486.5	483.2	482.3	484.0	476.4	473.9	477.3	480.6
35°	421.5	422.4	419.0	419.0	412.2	413.1	413.9	419.0
37.5°	359.0	357.3	356.5	357.3	352.2	350.6	348.9	353.9
40°	300.7	296.5	295.6	295.6	291.4	290.6	291.4	294.0
42.5°	245.8	245.0	241.6	243.3	239.1	240.7	239.9	239.9
45°	198.5	199.3	196.0	198.5	195.1	192.6	192.6	194.3
47.5°	157.1	157.1	156.3	156.3	153.7	154.6	152.9	155.4
50°	121.6	121.6	119.9	120.8	119.1	119.1	118.3	119.1
52.5°	92.9	92.1	92.1	91.2	89.5	90.4	91.2	89.5
55°	67.6	68.4	66.7	67.6	65.9	66.7	65.9	66.7
57.5°	46.5	47.3	45.6	47.3	45.6	46.5	45.6	45.6
60°	32.1	32.1	31.3	32.1	31.3	31.3	30.4	32.1
62.5°	22.0	22.0	22.0	22.0	22.0	21.1	22.0	22.0
65°	16.0	15.2	15.2	15.2	15.2	15.2	15.2	15.2
67.5°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
70°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
72.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
75°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
77.5°	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
85°	0.8	0.8	0.8	0.0	0.8	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)