

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: P219514

Luminaire Tested: **LDSQ4B20D010 EU4B10209727 4LBSQLWWLI**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P219514
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P35471)
Test Lab: INNOVATION CENTER-P3
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQ4B20D010 EU4B10209727 4LBSQLWWLI
Description: PORTFOLIO 4 INCH SQUARE SINGLE WALLWASH RECESSED DOWNLIGHT, WITH SPECULAR CLEAR TRIM
Light Source: (1) HIGH LUMEN LED 97CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1128.8 lumens
Efficiency: N/A
Efficacy: 54.3 lumens/watt
Spacing Criteria (0/90/45): 1.01 / 1 / 1.06
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

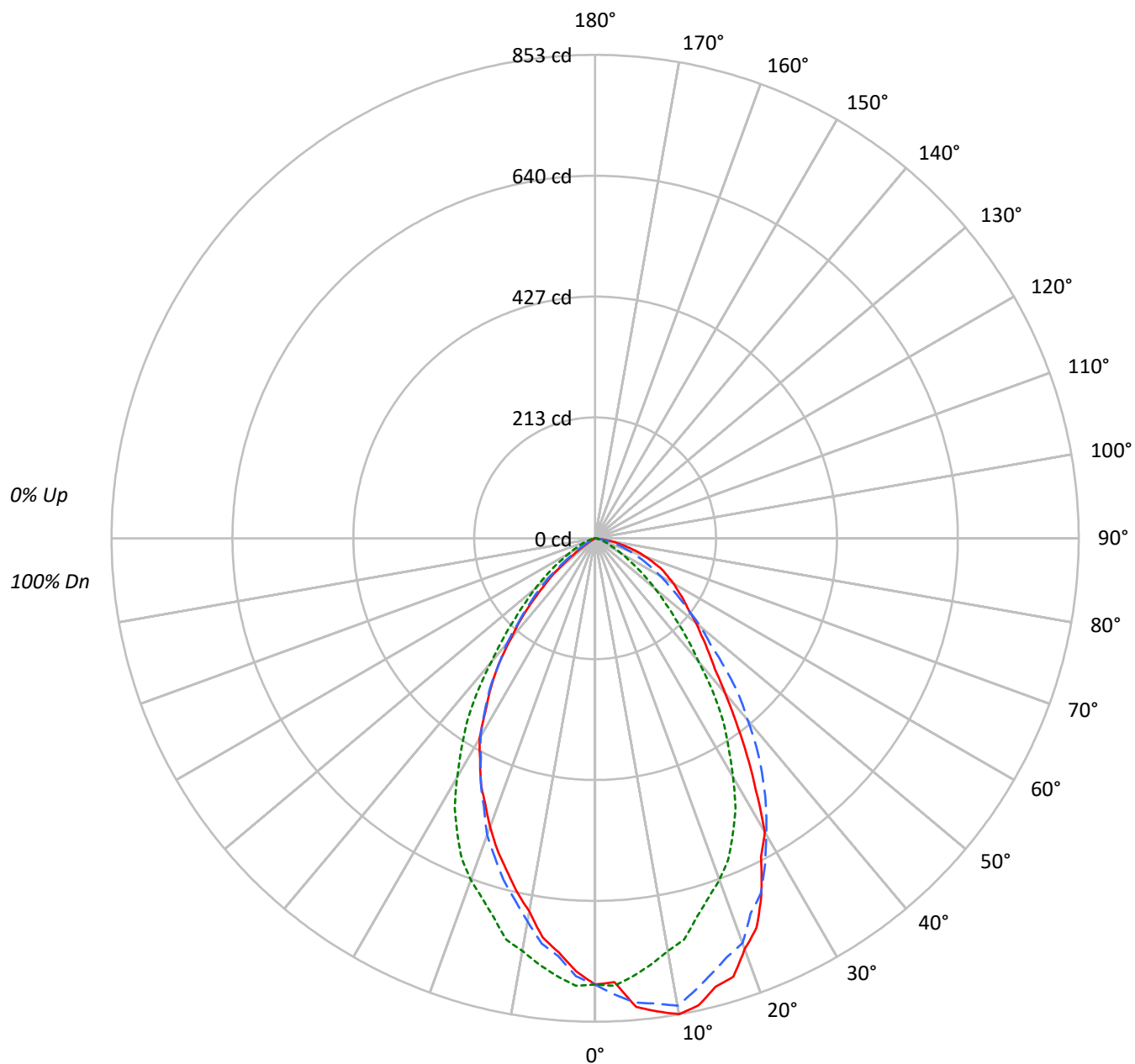
Input Watts (W): 20.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90		
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80		
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72		
4	91	81	74	69	89	80	74	69	78	72	68	76	71	67	74	70	66	64		
5	85	75	67	62	83	74	67	62	72	66	61	70	65	60	68	64	60	58		
6	80	69	61	56	78	68	61	56	66	60	55	65	59	55	63	58	54	53		
7	75	63	56	51	73	63	56	51	61	55	50	60	54	50	59	54	50	48		
8	70	59	52	47	69	58	51	46	57	51	46	56	50	46	55	50	46	44		
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41		
10	62	51	44	40	61	51	44	40	50	44	39	49	43	39	48	43	39	38		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	76289	76289	76289
5°	80714	75385	71349
10°	83870	72725	65760
15°	82200	69413	60697
20°	79526	66093	55876
25°	74182	61462	50965
30°	66961	54399	45629
35°	55158	46560	37856
40°	45020	35940	29137
45°	38676	27291	20961
50°	35010	20783	13232
55°	32209	14998	4780
60°	30923	10249	736
65°	29868	6923	206
70°	26738	4815	255
75°	21896	2470	0
80°	13668	1060	0
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.8	6.5
10°-20°	198.8	17.6
20°-30°	265.4	23.5
30°-40°	252.0	22.3
40°-50°	174.2	15.4
50°-60°	96.2	8.5
60°-70°	47.8	4.2
70°-80°	18.8	1.7
80°-90°	1.8	0.2
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°	538.0	47.7
0°-40°	790.0	70.0
0°-60°	1060.4	93.9
0°-90°	1128.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1128.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	788	788	788	788	788	
5°	830	822	775	740	734	79
15°	820	795	692	624	605	232
25°	694	691	575	477	477	316
35°	466	516	394	324	320	292
45°	282	324	199	163	153	220
55°	191	179	89	45	28	172
65°	130	94	30	1	1	126
75°	58	36	7	0	0	62
85°	0	1	0	0	0	5
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°	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5
2.5°	783.7	805.4	807.3	805.4	808.3	807.3	812.0	807.3	813.0	804.5	806.4
5°	830.0	821.5	839.4	830.0	830.0	829.0	826.2	825.2	829.0	816.7	822.4
7.5°	842.2	854.5	870.6	850.7	851.7	851.7	846.0	844.1	844.1	821.5	828.1
10°	852.6	845.1	853.6	846.0	852.6	851.7	855.5	843.2	851.7	838.5	837.5
12.5°	844.1	841.3	852.6	840.4	836.6	837.5	832.8	830.0	832.8	817.7	816.7
15°	819.6	822.4	839.4	826.2	824.3	822.4	816.7	807.3	814.9	794.1	795.0
17.5°	811.1	806.4	809.2	797.9	800.7	798.8	797.9	789.4	787.5	774.3	774.3
20°	771.4	781.8	781.8	774.3	774.3	773.3	761.0	768.6	760.1	756.3	760.1
22.5°	744.0	745.0	745.0	738.4	739.3	735.5	728.9	724.2	728.9	724.2	716.7
25°	694.0	695.9	707.2	694.9	693.1	696.8	691.2	688.3	687.4	676.1	691.2
27.5°	633.6	652.5	651.5	646.8	652.5	644.9	642.1	643.0	645.8	644.9	648.7
30°	598.6	601.5	604.3	600.5	601.5	598.6	598.6	599.6	607.1	604.3	603.4
32.5°	527.8	537.3	544.8	544.8	545.8	548.6	547.6	567.5	572.2	562.8	560.9
35°	466.4	473.1	479.7	480.6	492.9	493.8	494.8	500.4	513.7	516.5	515.5
37.5°	407.9	414.5	416.4	424.9	431.5	438.1	445.7	453.2	464.6	474.0	469.3
40°	356.0	358.8	363.5	367.3	380.5	380.5	384.3	399.4	411.7	419.2	418.3
42.5°	312.5	313.5	317.3	323.9	336.1	333.3	336.1	346.5	364.5	365.4	375.8
45°	282.3	281.4	284.2	285.2	292.7	296.5	298.4	305.9	321.0	322.9	323.9
47.5°	254.9	254.0	258.7	260.6	263.4	267.2	267.2	268.2	273.8	278.5	274.8
50°	232.3	232.3	232.3	234.2	238.9	237.9	238.9	242.7	245.5	243.6	242.7
52.5°	207.7	211.5	214.3	215.3	216.2	216.2	217.2	215.3	214.3	211.5	205.8
55°	190.7	194.5	194.5	194.5	194.5	198.3	193.6	194.5	194.5	187.0	179.4
57.5°	173.7	177.5	180.3	176.6	180.3	176.6	174.7	173.7	171.8	164.3	153.0
60°	159.6	161.5	160.5	159.6	161.5	158.6	156.7	153.0	151.1	140.7	133.1
62.5°	143.5	144.5	145.4	143.5	141.6	140.7	136.9	131.2	127.5	119.0	112.4
65°	130.3	127.5	126.5	125.6	123.7	120.9	118.0	111.4	108.6	101.0	94.4
67.5°	110.5	109.5	111.4	108.6	103.9	103.9	101.0	95.4	88.8	84.0	77.4
70°	94.4	93.5	91.6	88.8	87.8	84.0	84.0	77.4	75.5	67.0	61.4
72.5°	77.4	77.4	74.6	71.8	68.9	67.0	66.1	61.4	58.5	53.8	49.1
75°	58.5	58.5	57.6	54.8	52.9	51.0	50.0	46.3	43.4	38.7	35.9
77.5°	41.5	41.5	37.8	35.9	36.8	34.9	33.0	32.1	31.2	28.3	24.5
80°	24.5	23.6	20.8	21.7	20.8	20.8	19.8	18.9	17.0	15.1	13.2
82.5°	6.6	7.6	7.6	7.6	8.5	6.6	6.6	6.6	7.6	7.6	4.7
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9
87.5°	0.9	1.9	3.8	3.8	3.8	3.8	3.8	2.8	2.8	2.8	1.9
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5
2.5°	796.9	796.0	796.9	790.3	805.4	794.1	792.2	790.3	796.9	790.3	780.9
5°	813.9	804.5	801.6	798.8	807.3	794.1	791.3	792.2	787.5	775.2	776.1
7.5°	819.6	811.1	802.6	784.6	792.2	789.4	781.8	776.1	768.6	758.2	756.3
10°	821.5	812.0	799.8	794.1	782.8	779.0	776.1	766.7	757.3	739.3	734.6
12.5°	815.8	804.5	789.4	784.6	776.1	763.9	757.3	747.8	739.3	725.2	714.8
15°	791.3	781.8	777.1	761.0	757.3	749.7	736.5	723.3	711.0	692.1	686.4
17.5°	762.9	759.2	754.4	742.2	741.2	733.7	721.4	710.1	694.0	664.7	655.3
20°	733.7	733.7	718.6	713.8	723.3	708.2	698.7	688.3	655.3	641.1	624.1
22.5°	711.9	701.6	693.1	685.5	686.4	677.0	663.8	643.0	630.7	613.7	593.9
25°	669.5	673.2	654.3	651.5	654.3	632.6	626.0	609.0	591.1	575.0	559.9
27.5°	643.0	632.6	620.4	610.0	610.0	601.5	582.6	578.8	551.4	536.3	517.4
30°	603.4	595.8	585.4	570.3	568.4	561.8	546.7	537.3	508.9	486.3	475.9
32.5°	553.3	550.5	542.0	525.0	519.3	511.8	492.9	476.8	463.6	438.1	425.8
35°	517.4	507.0	489.1	474.9	470.2	457.0	441.9	430.6	416.4	393.7	377.7
37.5°	463.6	453.2	436.2	419.2	419.2	406.0	385.2	373.9	354.1	340.9	327.6
40°	416.4	403.2	386.2	366.4	363.5	344.6	336.1	317.3	305.0	284.2	282.3
42.5°	363.5	351.2	336.1	321.0	309.7	300.3	278.5	264.4	251.2	240.8	237.9
45°	315.4	299.3	286.1	267.2	255.9	244.6	230.4	220.9	210.6	199.2	192.6
47.5°	273.8	260.6	241.7	224.7	213.4	207.7	191.7	181.3	172.8	165.2	160.5
50°	231.3	215.3	204.9	186.0	184.1	170.9	157.7	149.2	144.5	137.9	131.2
52.5°	199.2	184.1	170.0	155.8	148.2	143.5	131.2	122.7	116.1	111.4	107.6
55°	168.1	154.9	143.5	129.4	124.6	118.0	103.9	102.0	95.4	88.8	84.0
57.5°	144.5	132.2	119.0	109.5	101.0	96.3	85.0	77.4	73.6	68.0	63.3
60°	122.7	109.5	99.1	87.8	84.0	77.4	68.9	62.3	57.6	52.9	48.2
62.5°	102.9	91.6	80.3	70.8	65.2	61.4	54.8	49.1	44.4	40.6	36.8
65°	85.0	74.6	65.2	55.7	52.9	48.2	43.4	38.7	34.9	30.2	26.4
67.5°	69.9	60.4	51.0	44.4	41.5	39.7	34.0	29.3	26.4	23.6	19.8
70°	54.8	48.2	40.6	34.9	32.1	29.3	25.5	22.7	18.9	17.0	14.2
72.5°	42.5	36.8	30.2	25.5	23.6	21.7	17.9	15.1	13.2	11.3	9.4
75°	30.2	25.5	21.7	17.0	16.1	15.1	12.3	10.4	8.5	6.6	5.7
77.5°	20.8	17.0	13.2	11.3	10.4	8.5	7.6	5.7	4.7	3.8	2.8
80°	11.3	8.5	6.6	5.7	4.7	3.8	3.8	2.8	1.9	1.9	0.9
82.5°	3.8	2.8	1.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	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°	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5
2.5°	786.5	776.1	779.0	779.0	777.1	777.1	775.2	772.4	773.3	767.6	755.4
5°	778.0	764.8	762.9	764.8	757.3	755.4	751.6	757.3	740.3	746.9	739.3
7.5°	753.5	741.2	738.4	745.0	735.5	729.9	728.9	736.5	721.4	713.8	705.3
10°	726.1	721.4	712.9	708.2	705.3	706.3	698.7	689.3	686.4	684.6	677.0
12.5°	701.6	691.2	683.6	677.9	676.1	676.1	663.8	661.9	653.4	651.5	640.2
15°	672.3	660.0	655.3	647.7	641.1	644.9	630.7	627.0	624.1	611.9	613.7
17.5°	646.8	633.6	622.2	617.5	611.9	606.2	593.0	595.8	589.2	589.2	572.2
20°	613.7	599.6	591.1	581.6	581.6	574.1	564.6	565.6	557.1	548.6	533.5
22.5°	578.8	563.7	553.3	549.5	540.1	538.2	526.9	524.0	512.7	513.7	500.4
25°	542.0	526.9	512.7	513.7	505.2	501.4	494.8	481.6	476.8	471.2	467.4
27.5°	498.5	488.2	475.9	474.9	458.9	459.8	451.3	447.6	436.2	439.1	430.6
30°	458.9	443.8	432.5	429.6	423.0	421.1	407.9	402.2	404.1	396.6	391.9
32.5°	418.3	395.6	390.9	385.2	381.5	376.7	367.3	371.1	362.6	364.5	356.9
35°	364.5	355.0	342.8	342.8	339.0	335.2	328.6	332.4	323.9	320.1	312.5
37.5°	319.1	310.6	298.4	302.1	295.5	289.9	284.2	285.2	277.6	276.7	269.1
40°	270.0	265.3	256.8	256.8	252.1	252.1	249.3	246.4	241.7	236.1	227.6
42.5°	223.8	220.0	216.2	217.2	210.6	216.2	208.7	213.4	198.3	197.3	191.7
45°	189.8	181.3	182.2	178.5	174.7	176.6	170.0	171.8	163.3	161.5	155.8
47.5°	153.9	151.1	145.4	143.5	143.5	140.7	137.9	136.9	133.1	128.4	120.9
50°	126.5	116.1	114.3	111.4	109.5	109.5	105.8	100.1	101.0	96.3	88.8
52.5°	99.1	90.6	86.9	85.9	82.1	80.3	75.5	71.8	68.9	67.0	62.3
55°	76.5	68.9	64.2	64.2	58.5	58.5	51.9	49.1	45.3	41.5	38.7
57.5°	57.6	53.8	49.1	45.3	43.4	38.7	34.9	30.2	27.4	21.7	17.9
60°	43.4	39.7	34.9	32.1	30.2	25.5	20.8	17.0	10.4	8.5	7.6
62.5°	32.1	28.3	23.6	21.7	19.8	16.1	11.3	5.7	2.8	2.8	2.8
65°	23.6	18.9	15.1	13.2	11.3	8.5	3.8	1.9	0.9	0.9	0.9
67.5°	16.1	12.3	8.5	7.6	5.7	2.8	0.9	0.9	0.9	0.9	0.9
70°	10.4	7.6	3.8	2.8	1.9	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	6.6	3.8	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	3.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9
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):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	787.5	787.5	787.5	787.5	787.5	787.5	787.5	787.5
2.5°	768.6	762.0	765.8	757.3	761.0	767.6	762.9	764.8
5°	742.2	738.4	733.7	721.4	730.8	738.4	734.6	733.7
7.5°	713.8	700.6	707.2	703.4	701.6	709.1	700.6	710.1
10°	684.6	675.1	674.2	667.6	667.6	673.2	674.2	668.5
12.5°	641.1	636.4	636.4	635.5	634.5	640.2	641.1	638.3
15°	610.0	608.1	603.4	602.4	596.7	605.2	606.2	605.2
17.5°	572.2	573.1	568.4	568.4	572.2	575.0	567.5	575.0
20°	546.7	542.0	540.1	531.6	536.3	541.0	541.0	542.0
22.5°	509.9	502.3	505.2	500.4	497.6	504.2	504.2	507.0
25°	468.3	468.3	470.2	467.4	469.3	473.1	470.2	476.8
27.5°	428.7	432.5	432.5	428.7	430.6	441.9	446.6	439.1
30°	391.9	392.8	395.6	393.7	399.4	403.2	402.2	407.9
32.5°	350.3	355.0	356.9	354.1	356.0	364.5	359.7	358.8
35°	318.2	309.7	308.8	309.7	313.5	315.4	313.5	320.1
37.5°	271.9	269.1	265.3	266.3	269.1	272.9	274.8	279.5
40°	227.6	223.8	223.8	222.8	220.0	230.4	230.4	230.4
42.5°	188.8	187.9	183.2	183.2	187.0	189.8	187.9	194.5
45°	154.9	151.1	148.2	148.2	151.1	151.1	153.9	153.0
47.5°	121.8	118.0	119.0	116.1	119.0	122.7	118.0	119.0
50°	91.6	91.6	89.7	91.6	90.6	91.6	89.7	87.8
52.5°	62.3	70.8	71.8	68.0	59.5	51.9	47.2	51.0
55°	35.9	32.1	32.1	31.2	29.3	28.3	25.5	28.3
57.5°	17.9	16.1	16.1	16.1	15.1	14.2	12.3	12.3
60°	7.6	6.6	6.6	5.7	4.7	3.8	2.8	3.8
62.5°	2.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9
65°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
67.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
70°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
72.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	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)