

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: HALO COMMERCIAL

Report Number: P584096

Luminaire Tested: **HC820D010-HM80520940-81WWBB**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P584096
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-17)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC820D010-HM80520940-81WWBB
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1773.6 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.07 / 1.16
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

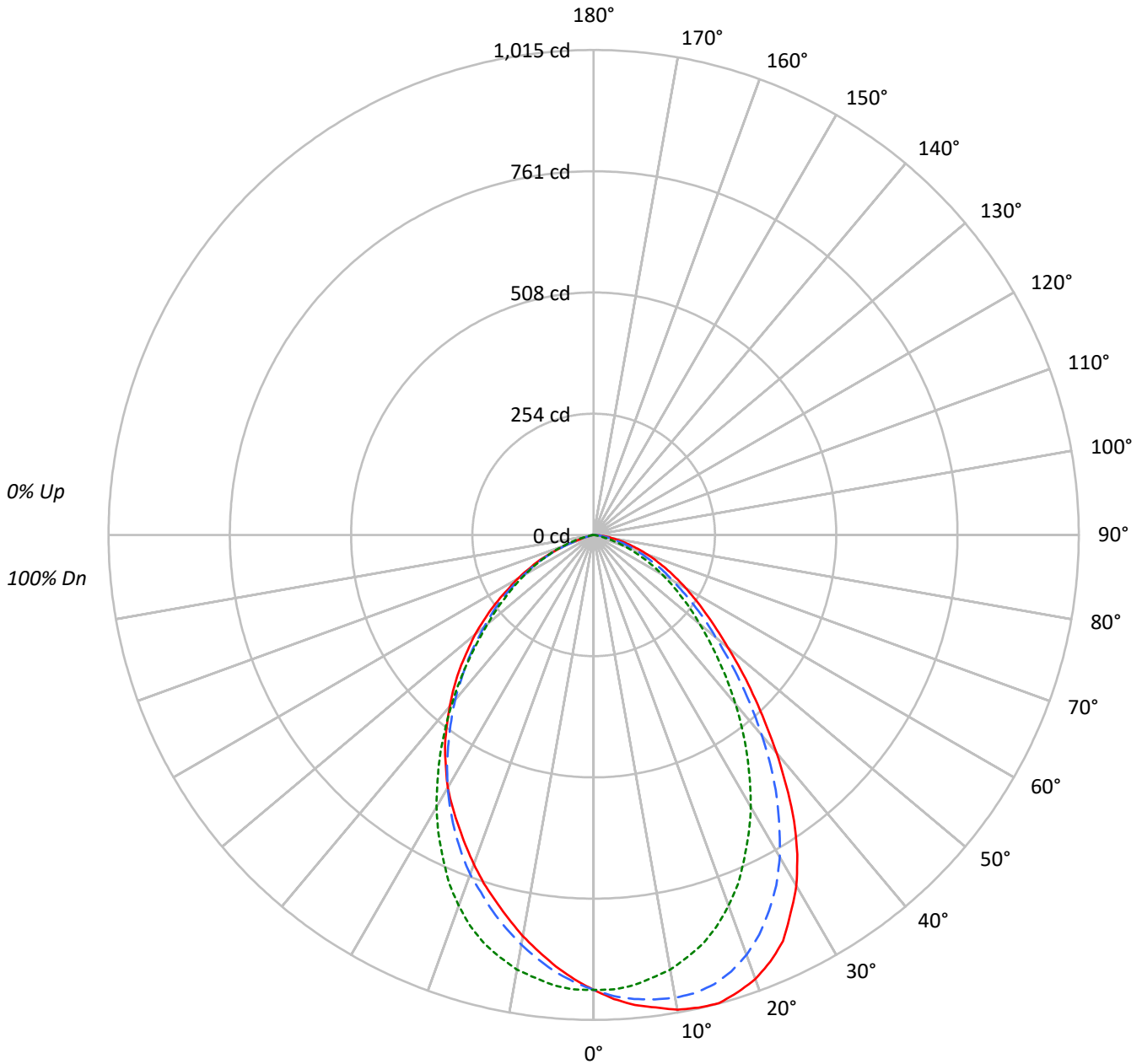
Input Watts (W): 20
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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			
1	111	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88			
2	103	96	90	86	100	94	89	85	91	86	83	88	84	81	85	82	79	77			
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67			
4	88	78	70	64	86	76	69	64	74	68	63	72	66	62	70	65	61	59			
5	82	70	63	57	80	69	62	56	67	61	56	65	60	55	64	59	55	53			
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	58	53	49	47			
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	49	44	43			
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39			
9	62	50	43	37	61	50	42	37	48	42	37	47	41	37	46	41	37	35			
10	59	47	39	34	57	46	39	34	45	39	34	44	38	34	43	38	34	32			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29362	29362	29362
5°	30576	29298	28063
10°	31597	28923	26697
15°	32393	28262	25309
20°	32461	27089	24054
25°	31911	25375	22806
30°	30205	23411	21741
35°	27537	21054	20414
40°	23947	18561	18851
45°	20544	16079	17256
50°	17548	13859	15495
55°	15376	11935	13467
60°	13691	10182	11323
65°	12149	8303	9040
70°	10774	6158	5139
75°	8983	3229	1525
80°	7068	1012	249
85°	5024	495	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.7	5.1
10°-20°	251.5	14.2
20°-30°	355.9	20.1
30°-40°	372.4	21.0
40°-50°	310.6	17.5
50°-60°	220.2	12.4
60°-70°	126.9	7.2
70°-80°	40.8	2.3
80°-90°	5.6	0.3
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°	697.1	39.3
0°-40°	1069.5	60.3
0°-60°	1600.3	90.2
0°-90°	1773.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1773.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	952	952	952	952	952	
5°	988	975	946	918	907	95
15°	1015	974	885	816	793	285
25°	938	868	746	686	670	428
35°	732	668	559	529	542	454
45°	471	433	369	373	396	365
55°	286	256	222	233	250	258
65°	166	140	114	114	124	166
75°	75	56	27	13	13	82
85°	14	7	1	0	0	18
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°	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2
2.5°	972.1	970.7	969.2	970.7	969.2	970.7	969.2	969.2	967.8	966.4	966.4
5°	987.8	986.4	986.4	986.4	985.0	983.5	983.5	982.1	979.2	977.8	974.9
7.5°	997.7	999.1	999.1	999.1	996.3	996.3	993.5	990.6	987.8	985.0	980.7
10°	1009.1	1009.1	1007.7	1006.2	1003.4	1002.0	1000.6	997.7	993.5	987.8	983.5
12.5°	1013.3	1013.3	1011.9	1009.1	1007.7	1006.2	1004.8	1000.6	994.9	987.8	982.1
15°	1014.7	1011.9	1010.5	1009.1	1006.2	1002.0	1002.0	996.3	989.2	980.7	973.5
17.5°	1003.4	1004.8	1002.0	999.1	994.9	992.1	987.8	983.5	974.9	965.0	957.9
20°	989.2	987.8	986.4	982.1	976.3	974.9	970.7	963.6	956.5	945.0	935.1
22.5°	966.4	965.0	962.1	959.3	953.6	950.8	946.5	937.9	928.0	916.6	905.2
25°	937.9	935.1	930.8	925.2	920.9	918.1	912.4	903.8	892.4	879.6	868.2
27.5°	892.4	896.7	893.8	885.3	881.1	875.3	873.9	862.5	852.6	839.7	826.9
30°	848.3	848.3	844.1	839.7	832.6	828.3	822.7	814.2	804.1	788.5	778.6
32.5°	792.8	791.3	785.7	784.3	778.6	770.0	768.5	757.2	747.3	735.8	723.0
35°	731.5	728.7	723.0	718.8	715.9	711.7	707.4	697.4	687.5	676.1	667.5
37.5°	661.8	661.8	660.4	653.3	650.5	647.6	643.4	633.3	627.6	616.3	607.8
40°	594.9	593.5	589.2	587.8	585.0	580.7	577.9	572.2	563.6	555.1	546.6
42.5°	529.4	530.8	525.2	526.6	520.9	518.1	516.7	508.1	503.9	495.3	488.2
45°	471.1	469.7	466.9	465.5	462.5	459.7	456.8	452.6	445.5	437.0	432.7
47.5°	417.0	412.8	412.8	411.3	409.9	404.2	402.8	398.6	394.2	385.7	380.0
50°	365.8	365.8	365.8	364.4	360.0	358.6	355.8	351.5	347.3	341.6	333.1
52.5°	324.5	324.5	324.5	323.0	317.4	315.9	314.5	308.9	303.2	298.9	293.3
55°	286.0	287.5	286.0	283.2	279.0	279.0	274.7	271.9	266.2	261.9	256.1
57.5°	253.3	253.3	250.5	249.0	246.2	244.8	242.0	239.1	232.0	227.8	220.6
60°	222.0	220.6	220.6	217.7	214.9	212.1	210.6	206.4	203.5	196.4	190.8
62.5°	193.6	193.6	190.8	190.8	185.0	185.0	183.6	179.3	175.1	168.0	165.1
65°	166.5	166.5	165.1	163.7	159.5	158.0	156.6	152.2	148.0	143.7	139.5
67.5°	142.3	142.3	139.5	138.1	135.2	133.8	131.0	128.1	123.9	119.5	115.2
70°	119.5	118.1	116.7	115.2	112.4	111.0	108.2	105.3	101.1	98.2	94.0
72.5°	96.8	96.8	95.4	92.6	91.1	89.7	88.3	85.3	81.1	76.8	74.0
75°	75.4	75.4	75.4	72.6	69.7	68.3	68.3	65.5	62.6	58.4	55.6
77.5°	58.4	57.0	55.6	55.6	52.7	51.2	49.8	48.3	44.1	42.7	39.8
80°	39.8	41.3	39.8	38.4	37.0	35.6	35.6	32.7	31.3	28.5	25.6
82.5°	27.1	25.6	25.6	24.2	24.2	22.8	22.8	20.0	18.6	17.0	15.6
85°	14.2	14.2	12.8	12.8	12.8	11.3	11.3	9.9	9.9	8.5	7.1
87.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	2.8	2.8	2.8
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°	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2
2.5°	965.0	962.1	960.7	960.7	959.3	957.9	956.5	955.1	952.2	952.2	949.4
5°	972.1	969.2	967.8	963.6	960.7	960.7	955.1	953.6	949.4	946.5	943.6
7.5°	977.8	972.1	967.8	963.6	960.7	957.9	952.2	946.5	940.8	935.1	932.2
10°	977.8	972.1	965.0	957.9	955.1	952.2	945.0	936.5	929.4	923.7	916.6
12.5°	974.9	966.4	957.9	952.2	946.5	942.2	933.7	925.2	916.6	905.2	899.5
15°	966.4	955.1	946.5	936.5	932.2	925.2	918.1	905.2	895.2	885.3	878.2
17.5°	949.4	935.1	925.2	915.2	908.0	903.8	892.4	881.1	869.6	858.3	849.7
20°	923.7	910.8	899.5	886.7	881.1	875.3	861.1	849.7	838.3	825.5	817.0
22.5°	892.4	879.6	863.9	854.0	845.5	838.3	825.5	812.7	801.3	789.9	778.6
25°	854.0	841.1	826.9	811.3	805.5	798.4	784.3	771.4	758.6	745.8	735.8
27.5°	812.7	795.6	784.3	767.1	761.4	754.4	738.6	724.4	713.1	703.1	691.7
30°	762.9	750.1	734.4	718.8	713.1	706.0	693.1	680.4	668.9	657.5	646.2
32.5°	708.8	696.0	680.4	668.9	660.4	654.7	641.9	630.5	619.1	607.8	597.7
35°	651.9	637.7	626.2	614.9	607.8	600.6	587.8	577.9	569.4	559.3	549.4
37.5°	593.5	583.6	572.2	559.3	552.2	546.6	536.6	525.2	518.1	509.6	502.5
40°	536.6	525.2	515.2	503.9	498.1	493.8	483.9	475.4	468.3	461.1	456.8
42.5°	478.2	468.3	458.3	451.2	446.9	442.7	435.6	425.5	421.3	414.2	409.9
45°	424.1	415.6	408.5	398.6	395.7	392.8	384.3	377.2	372.9	368.7	365.8
47.5°	372.9	367.2	358.6	352.9	348.7	345.9	340.2	334.5	330.3	327.4	324.5
50°	328.8	321.6	315.9	310.3	307.4	303.2	297.5	294.7	291.7	288.9	288.9
52.5°	287.5	280.4	274.7	270.4	267.6	264.8	260.5	259.1	256.1	256.1	254.7
55°	249.0	244.8	239.1	233.4	232.0	230.6	227.8	224.9	223.4	222.0	223.4
57.5°	216.3	212.1	206.4	202.1	200.7	199.3	197.9	195.0	193.6	193.6	193.6
60°	186.4	182.1	177.9	173.6	173.6	170.8	169.4	168.0	166.5	165.1	165.1
62.5°	159.5	155.2	150.8	148.0	146.6	145.1	142.3	140.9	139.5	139.5	138.1
65°	135.2	129.5	128.1	123.9	122.5	121.0	119.5	116.7	115.2	113.8	112.4
67.5°	111.0	108.2	103.9	101.1	99.6	98.2	96.8	94.0	92.6	91.1	88.3
70°	89.7	86.9	83.9	81.1	79.7	78.2	75.4	72.6	71.2	68.3	64.1
72.5°	69.7	66.9	64.1	61.2	59.8	58.4	55.6	52.7	49.8	46.9	44.1
75°	52.7	49.8	45.5	42.7	41.3	41.3	37.0	34.2	31.3	27.1	24.2
77.5°	37.0	32.7	31.3	28.5	27.1	24.2	21.4	18.6	15.6	14.2	11.3
80°	24.2	21.4	18.6	17.0	15.6	14.2	12.8	9.9	7.1	5.7	4.3
82.5°	14.2	12.8	11.3	9.9	8.5	7.1	5.7	5.7	4.3	2.8	1.4
85°	7.1	5.7	4.3	4.3	2.8	2.8	2.8	1.4	1.4	1.4	1.4
87.5°	2.8	1.4	1.4	1.4	1.4	1.4	1.4	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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2
2.5°	948.0	946.5	945.0	943.6	943.6	940.8	940.8	939.3	936.5	935.1	935.1
5°	939.3	935.1	932.2	930.8	929.4	925.2	923.7	920.9	918.1	915.2	913.8
7.5°	926.6	919.5	916.6	915.2	910.8	906.6	903.8	899.5	895.2	891.0	889.6
10°	910.8	903.8	896.7	893.8	889.6	886.7	881.1	875.3	871.0	866.8	862.5
12.5°	891.0	882.5	875.3	872.4	868.2	862.5	854.0	851.2	844.1	841.1	835.4
15°	868.2	858.3	851.2	846.9	842.5	834.0	828.3	822.7	815.6	812.7	807.0
17.5°	839.7	828.3	821.3	817.0	814.2	807.0	798.4	791.3	784.3	781.4	777.2
20°	805.5	798.4	788.5	784.3	781.4	772.8	764.3	761.4	755.8	750.1	745.8
22.5°	767.1	760.0	750.1	745.8	744.4	737.2	730.1	725.9	721.6	717.4	713.1
25°	727.3	718.8	710.3	707.4	704.5	698.8	693.1	690.3	686.0	683.2	680.4
27.5°	684.6	676.1	668.9	664.6	661.8	657.5	654.7	651.9	649.0	646.2	644.8
30°	639.1	630.5	624.8	622.0	619.1	617.7	613.5	612.0	610.6	607.8	609.2
32.5°	593.5	586.4	580.7	576.5	576.5	573.6	572.2	572.2	570.8	570.8	570.8
35°	543.7	539.5	535.2	533.8	532.3	530.8	529.4	530.8	529.4	530.8	532.3
37.5°	498.1	493.8	491.0	489.6	488.2	489.6	488.2	488.2	489.6	492.4	493.8
40°	451.2	448.3	445.5	446.9	445.5	445.5	445.5	449.8	451.2	452.6	454.0
42.5°	407.1	404.2	402.8	402.8	404.2	402.8	405.7	407.1	409.9	414.2	417.0
45°	364.4	363.0	363.0	364.4	363.0	365.8	365.8	368.7	372.9	375.8	378.6
47.5°	324.5	324.5	324.5	325.9	325.9	327.4	330.3	331.7	334.5	337.3	340.2
50°	287.5	288.9	290.3	290.3	290.3	293.3	296.1	297.5	298.9	300.3	304.6
52.5°	254.7	256.1	256.1	257.6	259.1	260.5	261.9	264.8	266.2	269.0	270.4
55°	223.4	223.4	226.4	227.8	227.8	227.8	230.6	230.6	233.4	234.9	237.7
57.5°	193.6	195.0	195.0	196.4	196.4	197.9	199.3	200.7	202.1	203.5	205.0
60°	165.1	165.1	165.1	166.5	168.0	169.4	168.0	170.8	170.8	173.6	175.1
62.5°	138.1	139.5	139.5	139.5	139.5	139.5	139.5	140.9	142.3	143.7	145.1
65°	112.4	112.4	112.4	111.0	112.4	111.0	112.4	113.8	113.8	115.2	116.7
67.5°	86.9	86.9	83.9	83.9	85.3	85.3	85.3	85.3	83.9	86.9	86.9
70°	62.6	61.2	59.8	58.4	58.4	57.0	57.0	55.6	55.6	55.6	55.6
72.5°	41.3	38.4	35.6	34.2	32.7	32.7	29.9	28.5	29.9	29.9	29.9
75°	21.4	18.6	17.0	15.6	14.2	14.2	12.8	12.8	12.8	12.8	12.8
77.5°	8.5	7.1	5.7	5.7	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	2.8	2.8	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	1.4	0.0	0.0	1.4	0.0	1.4	1.4	1.4	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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



TEST NUMBER: P584096

CATALOG NUMBER: HC820D010-HM80520940-81WWBB

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	952.2	952.2	952.2	952.2	952.2	952.2	952.2	952.2
2.5°	933.7	933.7	932.2	933.7	930.8	932.2	930.8	930.8
5°	912.4	909.4	909.4	909.4	908.0	908.0	906.6	906.6
7.5°	886.7	885.3	883.9	882.5	881.1	879.6	879.6	879.6
10°	861.1	858.3	858.3	856.8	854.0	852.6	852.6	852.6
12.5°	831.2	829.8	828.3	828.3	822.7	824.1	822.7	822.7
15°	802.7	801.3	801.3	797.0	794.2	794.2	794.2	792.8
17.5°	772.8	771.4	770.0	767.1	764.3	764.3	762.9	764.3
20°	741.6	740.2	737.2	737.2	735.8	734.4	731.5	733.0
22.5°	710.3	707.4	706.0	706.0	704.5	704.5	701.6	701.6
25°	677.5	676.1	674.7	676.1	673.3	673.3	670.3	670.3
27.5°	643.4	641.9	641.9	641.9	640.5	641.9	640.5	640.5
30°	609.2	609.2	607.8	607.8	609.2	607.8	609.2	610.6
32.5°	572.2	572.2	573.6	573.6	575.0	575.0	575.0	575.0
35°	533.8	536.6	536.6	538.0	539.5	540.9	540.9	542.3
37.5°	498.1	499.6	501.0	502.5	505.3	505.3	505.3	505.3
40°	459.7	461.1	463.9	462.5	468.3	469.7	468.3	468.3
42.5°	419.8	422.7	424.1	426.9	428.4	431.3	432.7	432.7
45°	382.8	384.3	387.1	389.9	391.4	395.7	395.7	395.7
47.5°	344.4	347.3	348.7	351.5	352.9	357.2	358.6	357.2
50°	307.4	310.3	313.1	313.1	317.4	318.8	321.6	323.0
52.5°	271.9	273.3	276.1	277.5	280.4	283.2	284.6	286.0
55°	237.7	239.1	242.0	242.0	246.2	247.6	250.5	250.5
57.5°	206.4	207.8	210.6	209.2	212.1	214.9	214.9	213.5
60°	176.5	176.5	176.5	179.3	180.7	182.1	183.6	183.6
62.5°	145.1	148.0	149.4	149.4	150.8	152.2	152.2	150.8
65°	116.7	119.5	121.0	121.0	122.5	122.5	122.5	123.9
67.5°	88.3	88.3	88.3	89.7	88.3	88.3	88.3	88.3
70°	55.6	55.6	55.6	55.6	54.1	55.6	55.6	57.0
72.5°	29.9	29.9	29.9	29.9	29.9	29.9	29.9	29.9
75°	12.8	12.8	12.8	14.2	12.8	12.8	12.8	12.8
77.5°	5.7	4.3	5.7	5.7	4.3	4.3	4.3	4.3
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
82.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
85°	0.0	1.4	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)