

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: P584055

Luminaire Tested: **HC820D010-HM80520930-81RWWC**

Issue Date: 10/21/2021

**Test Information**

Test Method: LM-41-14  
Report Number: P584055  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-14)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 10/21/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: HALO COMMERCIAL  
Catalog Number: HC820D010-HM80520930-81RWWC  
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, SPECULAR TRIM  
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1864.0 lumens  
Efficiency: N/A  
Efficacy: 93.2 lumens/watt  
Spacing Criteria (0/90/45): 1.15 / 1.08 / 1.17  
Luminous Opening: Circular (Dia: 0.67' x H: 0')  
CIE Type: Direct

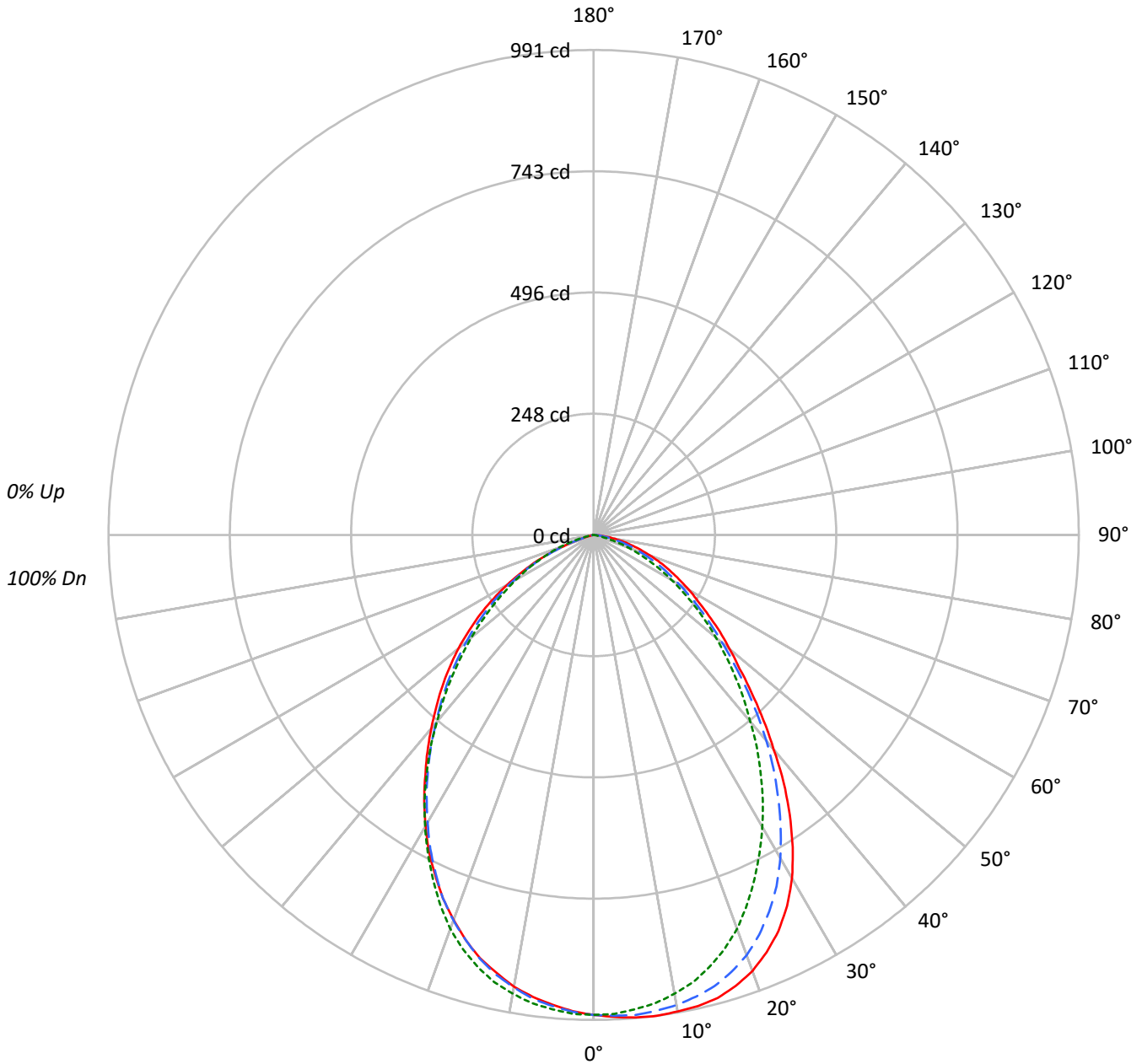
Input Watts (W): 20  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





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

RF	20									20									20									20									
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	107	104	101	108	105	102	99	101	98	96	97	95	93	93	92	90	88																			
2	103	96	90	85	100	94	89	84	91	86	82	87	84	81	85	82	79	77																			
3	95	86	79	73	93	84	78	73	82	76	72	79	74	70	76	73	69	67																			
4	88	77	70	64	86	76	69	64	74	68	63	72	66	62	69	65	61	59																			
5	81	70	62	56	80	69	62	56	67	61	56	65	59	55	63	58	54	52																			
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47																			
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42																			
8	66	54	46	41	65	53	46	41	52	45	40	51	45	40	50	44	40	38																			
9	62	50	42	37	61	49	42	37	48	42	37	47	41	37	46	41	37	35																			
10	58	46	39	34	57	46	39	34	45	38	34	44	38	34	43	38	34	32																			

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

	0°	90°	180°
0°	30244	30244	30244
5°	30641	30115	29834
10°	30955	29809	29358
15°	31270	29179	28594
20°	31112	28103	27457
25°	30387	26423	26066
30°	28863	24526	24433
35°	26276	22379	22575
40°	23033	20030	20767
45°	19873	17814	19070
50°	17405	15644	17280
55°	15419	13446	15209
60°	13889	11305	12594
65°	12513	9070	9653
70°	10972	6609	5319
75°	9365	3431	1406
80°	7192	923	231
85°	4635	0	0



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	92.5	5.0
10°-20°	260.1	14.0
20°-30°	369.2	19.8
30°-40°	388.7	20.9
40°-50°	330.6	17.7
50°-60°	238.9	12.8
60°-70°	135.9	7.3
70°-80°	42.8	2.3
80°-90°	5.2	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°	721.9	38.7
0°-40°	1110.6	59.6
0°-60°	1680.2	90.1
0°-90°	1864.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1864.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	981	981	981	981	981	
5°	990	985	973	966	964	94
15°	980	955	914	897	896	276
25°	893	849	777	764	766	409
35°	698	657	594	590	600	434
45°	456	439	408	419	437	354
55°	287	266	250	264	283	259
65°	172	148	124	123	132	170
75°	79	60	29	13	12	85
85°	13	8	0	0	0	17
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°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	986.0	987.3	984.7	984.7	987.3	984.7	986.0	986.0	984.7	984.7	983.4
5°	989.9	988.6	988.6	988.6	989.9	987.3	986.0	987.3	984.7	984.7	984.7
7.5°	991.2	991.2	989.9	988.6	988.6	988.6	987.3	986.0	984.7	982.1	980.8
10°	988.6	988.6	989.9	987.3	987.3	984.7	984.7	982.1	982.1	979.5	975.5
12.5°	986.0	984.7	984.7	982.1	982.1	979.5	979.5	975.5	974.2	970.3	966.4
15°	979.5	978.2	975.5	974.2	972.9	971.6	969.0	967.7	963.8	958.5	954.6
17.5°	966.4	965.1	963.8	961.2	958.5	957.2	955.9	952.0	946.8	942.9	936.3
20°	948.1	946.8	946.8	942.9	941.5	937.6	936.3	931.1	927.2	919.2	914.0
22.5°	923.1	924.4	921.8	919.2	916.6	912.7	910.1	904.8	898.3	890.4	883.9
25°	893.1	894.4	891.7	889.1	885.2	882.6	880.0	872.1	865.6	856.4	848.6
27.5°	855.1	855.1	855.1	852.5	846.0	844.7	841.9	834.1	824.9	817.1	809.3
30°	810.6	809.3	809.3	805.3	802.7	797.5	793.6	787.0	780.5	771.3	762.2
32.5°	756.8	758.1	754.2	751.6	747.7	747.7	742.4	737.2	729.4	720.2	711.1
35°	698.0	699.3	696.7	695.4	688.8	687.5	686.2	679.6	674.3	667.8	657.3
37.5°	637.7	636.4	635.1	635.1	631.2	628.6	626.0	622.0	614.2	608.8	603.6
40°	572.2	572.2	572.2	570.9	569.6	567.0	565.7	563.1	557.8	552.6	548.7
42.5°	513.3	513.3	512.0	510.7	508.0	509.4	506.7	504.1	498.9	495.0	492.4
45°	455.7	455.7	455.7	457.0	454.4	450.5	450.5	447.9	445.3	442.7	438.6
47.5°	404.6	408.5	405.9	404.6	405.9	400.7	400.7	398.1	395.5	392.9	387.6
50°	362.8	362.8	362.8	360.2	358.9	358.9	354.8	352.2	350.9	348.3	343.1
52.5°	324.7	322.1	322.1	320.8	319.5	316.9	316.9	314.3	309.1	306.4	302.5
55°	286.8	286.8	285.5	284.2	282.9	281.6	280.3	276.4	273.6	269.7	265.8
57.5°	252.7	255.3	254.0	251.4	248.8	248.8	246.2	243.6	239.6	235.7	231.8
60°	225.2	223.9	223.9	222.6	220.0	218.7	217.4	213.5	209.6	205.5	201.6
62.5°	196.4	196.4	196.4	193.8	191.1	189.8	188.5	185.9	180.7	176.8	174.1
65°	171.5	170.2	168.9	167.6	166.3	163.7	162.4	159.8	155.8	151.9	148.0
67.5°	146.7	145.4	145.4	144.1	140.1	138.8	138.8	134.9	131.0	127.1	123.0
70°	121.7	121.7	121.7	119.1	117.8	116.5	115.2	112.6	108.7	104.7	100.8
72.5°	100.8	99.5	99.5	98.2	94.3	93.0	91.6	89.0	85.1	82.5	79.9
75°	78.6	78.6	77.3	76.0	74.6	73.3	72.0	69.4	65.5	61.6	60.3
77.5°	60.3	59.0	59.0	57.6	55.0	53.7	53.7	51.1	47.2	44.6	42.0
80°	40.5	42.0	40.5	39.2	37.9	36.6	35.3	34.0	31.4	28.8	26.2
82.5°	24.8	26.2	24.8	24.8	23.5	22.2	22.2	19.6	18.3	17.0	15.7
85°	13.1	13.1	13.1	13.1	11.8	11.8	11.8	10.5	9.2	7.8	7.8
87.5°	3.9	5.2	3.9	3.9	3.9	3.9	3.9	3.9	2.6	2.6	2.6
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°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	984.7	983.4	982.1	982.1	982.1	982.1	982.1	980.8	979.5	979.5	979.5
5°	982.1	982.1	982.1	980.8	979.5	979.5	976.9	975.5	974.2	972.9	971.6
7.5°	979.5	976.9	975.5	974.2	972.9	972.9	970.3	967.7	967.7	965.1	962.5
10°	971.6	970.3	967.7	965.1	963.8	962.5	959.9	955.9	954.6	952.0	949.4
12.5°	962.5	959.9	957.2	952.0	950.7	949.4	944.2	940.2	937.6	936.3	929.8
15°	950.7	945.5	941.5	935.0	933.7	931.1	927.2	923.1	917.9	914.0	911.4
17.5°	929.8	924.4	917.9	911.4	908.7	908.7	902.2	897.0	890.4	887.8	882.6
20°	904.8	898.3	893.1	885.2	881.3	877.4	873.4	865.6	860.4	856.4	849.9
22.5°	876.1	866.9	860.4	852.5	846.0	841.9	835.4	828.9	822.3	818.4	813.2
25°	839.3	831.5	821.0	813.2	809.3	804.0	796.2	789.6	783.1	776.6	773.9
27.5°	798.8	788.3	779.2	770.0	766.1	762.2	752.9	745.1	739.8	733.3	730.7
30°	754.2	743.8	733.3	725.4	721.5	715.0	709.8	700.6	694.1	688.8	682.3
32.5°	703.2	695.4	686.2	674.3	671.7	666.5	658.6	654.7	646.9	643.0	637.7
35°	648.2	643.0	633.8	624.6	620.7	618.1	611.6	603.6	598.4	594.5	591.8
37.5°	595.8	589.2	580.1	573.5	570.9	567.0	559.2	555.2	550.0	547.4	542.1
40°	539.5	533.0	526.5	522.4	518.5	515.9	510.7	506.7	501.5	497.6	496.3
42.5°	484.5	480.6	475.3	470.1	468.8	464.9	462.3	458.3	454.4	453.1	449.2
45°	434.7	430.8	425.6	420.3	419.0	416.4	415.1	411.2	408.5	408.5	408.5
47.5°	385.0	381.1	375.9	373.2	374.5	369.3	369.3	368.0	365.4	365.4	366.7
50°	340.4	335.2	333.9	331.3	328.7	326.1	327.4	323.4	323.4	326.1	324.7
52.5°	298.6	293.4	292.1	289.4	288.1	288.1	286.8	286.8	285.5	286.8	286.8
55°	260.6	256.6	254.0	251.4	250.1	250.1	250.1	248.8	247.5	250.1	251.4
57.5°	226.6	225.2	222.6	218.7	217.4	216.1	214.8	214.8	214.8	214.8	216.1
60°	196.4	193.8	191.1	187.2	187.2	185.9	184.6	183.3	183.3	183.3	183.3
62.5°	170.2	166.3	162.4	159.8	158.4	157.1	155.8	153.2	153.2	153.2	153.2
65°	144.1	140.1	137.5	134.9	132.3	132.3	129.7	128.4	125.8	124.3	121.7
67.5°	119.1	116.5	113.9	110.0	108.7	107.3	104.7	103.4	99.5	98.2	96.9
70°	96.9	93.0	90.3	87.7	86.4	83.8	81.2	78.6	76.0	73.3	70.7
72.5°	76.0	72.0	69.4	66.8	64.2	64.2	60.3	57.6	53.7	51.1	47.2
75°	56.3	52.4	49.8	45.9	44.6	43.3	39.2	36.6	32.7	28.8	26.2
77.5°	37.9	35.3	32.7	28.8	26.2	26.2	22.2	19.6	17.0	13.1	11.8
80°	23.5	20.9	18.3	15.7	15.7	13.1	11.8	9.2	6.5	5.2	3.9
82.5°	13.1	11.8	10.5	7.8	7.8	6.5	5.2	3.9	2.6	1.3	1.3
85°	6.5	5.2	3.9	3.9	2.6	2.6	2.6	1.3	1.3	0.0	0.0
87.5°	2.6	1.3	1.3	1.3	1.3	1.3	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):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	978.2	978.2	976.9	976.9	976.9	975.5	976.9	975.5	975.5	975.5	976.9
5°	972.9	970.3	970.3	969.0	969.0	967.7	969.0	967.7	966.4	965.1	966.4
7.5°	962.5	959.9	958.5	957.2	957.2	957.2	955.9	954.6	955.9	952.0	954.6
10°	948.1	946.8	944.2	942.9	941.5	942.9	941.5	938.9	938.9	938.9	937.6
12.5°	929.8	927.2	925.7	924.4	921.8	921.8	923.1	920.5	920.5	917.9	917.9
15°	907.4	904.8	902.2	902.2	899.6	899.6	898.3	898.3	897.0	895.7	895.7
17.5°	880.0	876.1	873.4	874.7	873.4	872.1	872.1	869.5	868.2	869.5	869.5
20°	847.3	844.7	841.9	843.4	840.6	839.3	840.6	836.7	838.0	838.0	838.0
22.5°	810.6	809.3	805.3	805.3	802.7	801.4	802.7	802.7	804.0	802.7	802.7
25°	770.0	767.4	764.8	764.8	763.5	762.2	763.5	764.8	763.5	764.8	764.8
27.5°	726.8	722.8	722.8	720.2	720.2	721.5	720.2	721.5	722.8	722.8	725.4
30°	679.6	678.3	677.0	675.6	675.6	677.0	677.0	677.0	678.3	681.0	681.0
32.5°	635.1	632.5	629.9	629.9	632.5	631.2	632.5	632.5	635.1	635.1	637.7
35°	586.6	586.6	584.0	585.3	585.3	585.3	585.3	587.9	590.5	591.8	594.5
37.5°	542.1	538.2	539.5	539.5	540.8	539.5	543.5	543.5	546.1	546.1	548.7
40°	493.7	493.7	495.0	493.7	495.0	495.0	497.6	500.2	501.5	504.1	505.4
42.5°	447.9	450.5	447.9	449.2	450.5	451.8	453.1	454.4	459.7	462.3	466.2
45°	405.9	407.2	408.5	409.9	408.5	411.2	412.5	415.1	419.0	420.3	421.6
47.5°	365.4	366.7	368.0	369.3	369.3	371.9	373.2	375.9	378.5	379.8	381.1
50°	326.1	328.7	330.0	330.0	331.3	333.9	336.5	336.5	339.1	343.1	344.4
52.5°	290.7	290.7	293.4	294.7	296.0	296.0	299.9	301.2	302.5	305.1	307.7
55°	251.4	255.3	256.6	256.6	259.3	261.9	263.2	264.5	264.5	269.7	269.7
57.5°	217.4	218.7	221.3	221.3	221.3	225.2	225.2	227.9	229.2	230.5	233.1
60°	183.3	185.9	185.9	187.2	185.9	188.5	189.8	192.5	193.8	195.1	196.4
62.5°	151.9	151.9	153.2	153.2	153.2	153.2	155.8	155.8	158.4	159.8	161.1
65°	121.7	121.7	121.7	121.7	121.7	121.7	121.7	121.7	123.0	123.0	125.8
67.5°	94.3	93.0	90.3	91.6	90.3	90.3	89.0	89.0	90.3	90.3	93.0
70°	68.1	66.8	64.2	64.2	62.9	61.6	60.3	59.0	57.6	57.6	57.6
72.5°	44.6	42.0	37.9	36.6	36.6	34.0	31.4	30.1	30.1	30.1	30.1
75°	22.2	19.6	17.0	15.7	15.7	13.1	14.4	13.1	13.1	13.1	13.1
77.5°	9.2	6.5	5.2	5.2	5.2	3.9	3.9	3.9	3.9	3.9	3.9
80°	2.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
82.5°	1.3	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	0.0	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°	980.8	980.8	980.8	980.8	980.8	980.8	980.8	980.8
2.5°	975.5	975.5	972.9	974.2	974.2	974.2	974.2	974.2
5°	963.8	965.1	963.8	965.1	965.1	963.8	963.8	963.8
7.5°	952.0	953.3	952.0	953.3	953.3	953.3	952.0	952.0
10°	937.6	937.6	937.6	937.6	937.6	936.3	937.6	937.6
12.5°	917.9	917.9	917.9	919.2	919.2	917.9	917.9	916.6
15°	897.0	894.4	895.7	897.0	895.7	895.7	895.7	895.7
17.5°	868.2	869.5	868.2	868.2	868.2	868.2	869.5	868.2
20°	838.0	838.0	839.3	838.0	838.0	838.0	838.0	836.7
22.5°	804.0	802.7	802.7	804.0	804.0	802.7	804.0	804.0
25°	766.1	767.4	766.1	766.1	767.4	767.4	767.4	766.1
27.5°	725.4	726.8	728.1	726.8	726.8	726.8	728.1	729.4
30°	683.6	686.2	683.6	683.6	686.2	684.9	686.2	686.2
32.5°	639.0	643.0	640.3	643.0	643.0	644.3	643.0	644.3
35°	594.5	598.4	598.4	598.4	599.7	601.0	601.0	599.7
37.5°	552.6	553.9	553.9	556.5	557.8	559.2	559.2	557.8
40°	509.4	512.0	513.3	513.3	513.3	515.9	518.5	515.9
42.5°	467.5	468.8	470.1	470.1	472.7	474.0	475.3	475.3
45°	426.9	429.5	430.8	432.1	433.4	436.0	434.7	437.3
47.5°	385.0	388.9	390.2	391.5	394.2	395.5	396.8	398.1
50°	347.0	349.6	349.6	352.2	356.1	356.1	358.9	360.2
52.5°	309.1	310.4	311.7	313.0	315.6	318.2	318.2	320.8
55°	272.3	273.6	273.6	274.9	276.4	281.6	282.9	282.9
57.5°	234.4	234.4	237.0	238.3	239.6	242.3	242.3	242.3
60°	197.7	199.0	199.0	200.3	201.6	204.2	205.5	204.2
62.5°	161.1	162.4	162.4	163.7	166.3	167.6	166.3	166.3
65°	127.1	128.4	128.4	129.7	132.3	132.3	131.0	132.3
67.5°	93.0	93.0	93.0	93.0	93.0	93.0	93.0	93.0
70°	59.0	57.6	56.3	57.6	57.6	57.6	56.3	59.0
72.5°	28.8	30.1	30.1	30.1	30.1	30.1	30.1	28.8
75°	13.1	13.1	11.8	11.8	11.8	13.1	13.1	11.8
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
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)