

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: P584063

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

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P584063
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-16)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC820D010-HM80520930-81WWW
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, WHITE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1780.3 lumens
Efficiency: N/A
Efficacy: 89.0 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.04 / 1.13
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

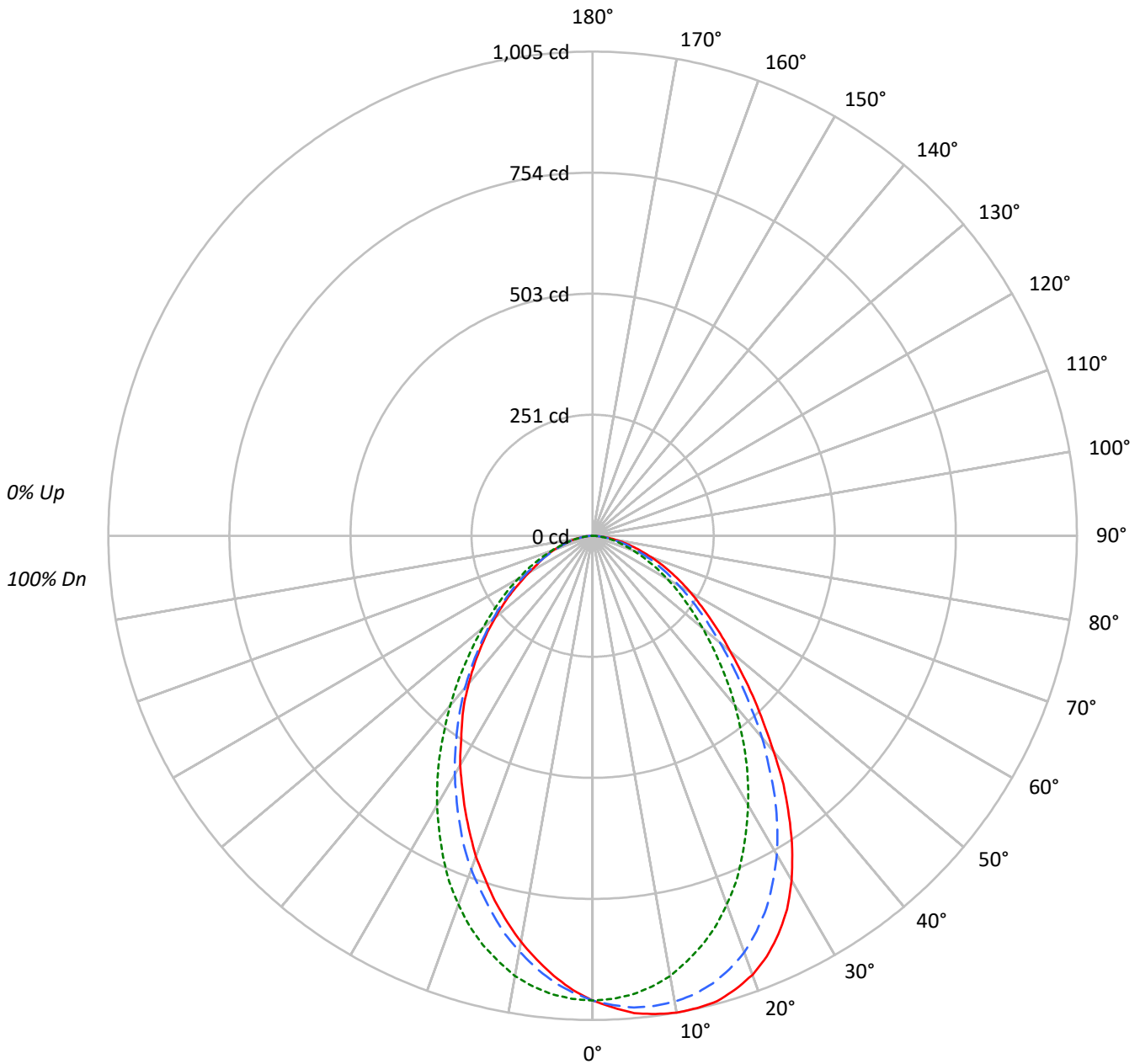
Input Watts (W): 20
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	106	103	99	108	104	101	98	100	97	95	96	94	92	93	91	89	87																			
2	102	95	89	84	99	93	88	83	90	85	81	86	83	79	83	80	78	76																			
3	94	85	78	72	92	83	77	71	81	75	70	78	73	69	75	71	68	66																			
4	87	76	69	63	85	75	68	62	73	67	62	71	65	61	68	64	60	58																			
5	81	69	61	55	79	68	61	55	66	60	54	64	59	54	63	57	53	51																			
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46																			
7	70	58	50	44	69	57	50	44	56	49	44	54	48	44	53	48	43	41																			
8	66	53	46	40	64	53	45	40	51	45	40	50	44	40	49	44	39	38																			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34																			
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29745	29745	29745
5°	30793	29577	28400
10°	31475	29058	26803
15°	31924	28077	25028
20°	31824	26718	23237
25°	31040	24984	21330
30°	29408	22977	19573
35°	26754	20791	17791
40°	23500	18493	16069
45°	20488	16266	14326
50°	17831	14258	12622
55°	15908	12526	10973
60°	14450	10978	9368
65°	12988	9544	8500
70°	11558	8141	7673
75°	10139	6863	6553
80°	8613	5576	5807
85°	6475	4175	4635



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	90.4	5.1
10°-20°	249.0	14.0
20°-30°	345.6	19.4
30°-40°	357.3	20.1
40°-50°	299.2	16.8
50°-60°	217.2	12.2
60°-70°	137.0	7.7
70°-80°	67.9	3.8
80°-90°	16.9	0.9
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°	684.9	38.5
0°-40°	1042.2	58.5
0°-60°	1558.5	87.5
0°-90°	1780.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1780.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	965	965	965	965	965	
5°	995	983	956	929	918	95
15°	1000	962	880	809	784	281
25°	912	853	734	654	627	418
35°	711	658	552	490	473	443
45°	470	436	373	336	328	363
55°	296	270	233	213	204	267
65°	178	156	131	115	116	177
75°	85	71	58	55	55	91
85°	18	14	12	13	13	22
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°	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6
2.5°	980.4	980.4	981.7	980.4	980.4	980.4	979.1	979.1	977.8	977.8	975.2
5°	994.8	992.2	994.8	992.2	992.2	992.2	990.9	988.2	986.9	984.3	983.0
7.5°	1001.3	1000.0	1000.0	998.7	998.7	997.4	996.1	994.8	989.6	988.2	984.3
10°	1005.2	1003.9	1003.9	1002.6	1000.0	1000.0	997.4	996.1	989.6	986.9	981.7
12.5°	1003.9	1003.9	1003.9	1002.6	998.7	997.4	994.8	990.9	985.6	980.4	975.2
15°	1000.0	1000.0	997.4	996.1	992.2	989.6	988.2	981.7	976.5	969.8	962.0
17.5°	986.9	986.9	985.6	983.0	979.1	976.5	973.8	967.2	962.0	951.5	943.7
20°	969.8	968.5	967.2	963.3	959.4	958.1	954.2	945.0	938.5	930.6	920.2
22.5°	945.0	943.7	942.4	939.8	933.2	930.6	928.0	921.5	909.7	901.9	888.7
25°	912.3	912.3	909.7	905.8	899.1	896.5	892.6	886.1	875.6	863.8	853.4
27.5°	874.3	873.0	869.1	866.5	861.2	857.3	850.8	842.9	832.5	823.3	810.1
30°	825.9	825.9	823.3	819.4	812.9	810.1	804.9	795.8	785.3	773.5	764.4
32.5°	770.9	770.9	767.0	764.4	760.5	753.9	752.6	742.2	733.0	723.9	713.3
35°	710.7	712.0	709.4	704.2	697.6	697.6	695.0	685.8	675.4	666.2	658.4
37.5°	650.5	646.6	645.3	642.7	638.8	633.6	630.8	626.9	617.8	611.2	599.5
40°	583.8	585.1	582.5	579.9	578.5	574.6	573.3	566.8	560.1	552.3	547.1
42.5°	523.5	523.5	523.5	520.9	518.3	514.4	513.1	509.2	501.3	496.1	488.2
45°	469.8	465.9	465.9	464.6	463.3	460.7	456.8	454.1	448.9	445.0	435.8
47.5°	417.5	418.9	417.5	416.2	412.3	411.0	409.7	404.5	399.2	395.3	388.8
50°	371.7	374.3	371.7	371.7	369.1	367.8	365.1	361.2	357.3	350.8	344.2
52.5°	333.8	333.8	332.5	331.2	327.2	324.6	323.3	322.0	315.5	310.2	305.0
55°	295.9	297.2	297.2	293.1	291.8	289.2	287.9	284.0	281.4	273.5	269.6
57.5°	263.1	261.8	263.1	260.5	257.8	255.2	253.9	251.3	247.4	242.2	236.9
60°	234.3	231.7	231.7	230.4	227.8	226.5	223.9	219.9	216.0	210.8	206.8
62.5°	205.5	204.1	202.8	201.5	198.9	197.6	196.3	192.4	188.5	184.5	180.6
65°	178.0	178.0	176.7	174.1	172.8	171.5	170.2	167.5	162.3	159.7	155.8
67.5°	153.2	151.9	151.9	149.2	146.6	145.3	145.3	142.7	138.8	134.9	132.1
70°	128.2	129.5	128.2	126.9	124.3	124.3	121.7	120.4	115.1	113.8	109.9
72.5°	106.0	106.0	104.7	104.7	102.1	100.8	100.8	98.2	95.5	92.9	90.3
75°	85.1	85.1	85.1	83.8	82.5	79.8	79.8	78.5	75.9	73.3	70.7
77.5°	66.8	65.5	65.5	64.2	62.9	61.5	61.5	60.2	57.6	56.3	53.7
80°	48.5	47.2	47.2	47.2	44.4	45.9	44.4	43.1	41.8	40.5	39.2
82.5°	31.4	32.7	32.7	31.4	30.1	30.1	30.1	28.8	28.8	27.5	26.1
85°	18.3	18.3	18.3	18.3	17.0	17.0	17.0	15.7	15.7	15.7	14.4
87.5°	7.8	7.8	7.8	7.8	7.8	7.8	6.5	6.5	6.5	6.5	6.5
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°	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6
2.5°	975.2	972.5	971.1	969.8	969.8	968.5	967.2	964.6	964.6	962.0	960.7
5°	980.4	976.5	973.8	971.1	969.8	967.2	964.6	960.7	959.4	955.5	951.5
7.5°	981.7	975.2	972.5	967.2	964.6	962.0	956.8	952.8	947.6	943.7	938.5
10°	976.5	971.1	964.6	958.1	956.8	952.8	945.0	939.8	933.2	928.0	920.2
12.5°	968.5	960.7	954.2	946.3	942.4	938.5	930.6	922.8	913.6	904.5	896.5
15°	955.5	946.3	937.2	928.0	922.8	918.9	909.7	900.6	891.3	879.5	871.7
17.5°	935.9	925.4	916.2	904.5	899.1	895.2	883.5	873.0	861.2	849.5	841.6
20°	911.0	897.8	887.4	874.3	870.4	863.8	852.1	840.3	827.2	814.2	804.9
22.5°	878.2	865.2	853.4	840.3	833.8	827.2	815.5	801.0	787.9	777.5	768.3
25°	840.3	828.5	814.2	802.3	794.5	786.6	773.5	761.8	750.0	734.3	725.2
27.5°	798.4	784.0	773.5	757.9	750.0	744.8	730.4	714.6	704.2	689.8	679.3
30°	751.3	738.2	726.5	710.7	702.8	697.6	684.5	670.2	659.7	645.3	634.9
32.5°	701.5	687.2	672.8	662.3	653.2	647.9	633.6	624.3	611.2	599.5	587.7
35°	647.9	633.6	623.0	608.6	603.4	598.2	586.4	574.6	562.9	552.3	543.1
37.5°	590.3	579.9	568.1	557.5	553.6	548.4	534.0	523.5	514.4	503.9	496.1
40°	534.0	524.8	517.0	506.5	500.0	496.1	485.6	476.5	465.9	459.4	451.5
42.5°	483.0	472.6	464.6	456.8	450.2	446.3	437.2	430.6	422.8	416.2	407.1
45°	429.3	424.1	414.9	408.4	404.5	399.2	392.7	384.9	378.2	373.0	366.5
47.5°	382.1	376.9	370.4	362.5	359.9	356.0	349.5	344.2	339.0	333.8	327.2
50°	339.0	332.5	327.2	322.0	319.4	315.5	308.9	306.3	302.4	297.2	293.1
52.5°	299.8	294.6	289.2	282.7	281.4	278.8	274.8	269.6	265.7	263.1	260.5
55°	264.4	259.2	255.2	250.0	248.7	246.1	240.9	238.2	235.6	233.0	230.4
57.5°	233.0	227.8	222.5	219.9	217.3	214.7	213.4	209.5	206.8	205.5	202.8
60°	204.1	198.9	195.0	191.1	189.8	188.5	185.8	183.2	180.6	178.0	176.7
62.5°	176.7	171.5	168.8	166.2	163.6	163.6	161.0	158.4	155.8	154.5	151.9
65°	151.9	149.2	145.3	141.4	140.1	140.1	136.2	134.9	133.4	130.8	128.2
67.5°	128.2	125.6	121.7	120.4	119.1	117.8	116.5	113.8	111.2	109.9	107.3
70°	107.3	104.7	102.1	100.8	99.5	98.2	95.5	94.2	91.6	90.3	89.0
72.5°	86.4	85.1	82.5	81.2	79.8	78.5	77.2	75.9	73.3	72.0	70.7
75°	69.4	68.1	65.5	64.2	62.9	62.9	61.5	58.9	57.6	57.6	56.3
77.5°	52.4	51.1	49.8	48.5	47.2	47.2	45.9	44.4	43.1	43.1	41.8
80°	37.9	36.6	35.3	35.3	35.3	34.0	32.7	32.7	31.4	31.4	30.1
82.5°	24.8	24.8	23.5	23.5	23.5	22.2	22.2	20.9	20.9	20.9	20.9
85°	14.4	14.4	14.4	13.1	13.1	13.1	13.1	13.1	13.1	11.8	13.1
87.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	5.2	5.2	5.2
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°	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6
2.5°	959.4	958.1	955.5	955.5	952.8	952.8	951.5	950.2	948.9	947.6	946.3
5°	950.2	945.0	942.4	941.1	938.5	937.2	933.2	930.6	929.3	926.7	924.1
7.5°	933.2	928.0	922.8	921.5	920.2	914.9	911.0	907.1	904.5	901.9	899.1
10°	913.6	908.4	901.9	899.1	896.5	890.0	884.8	880.8	875.6	870.4	869.1
12.5°	890.0	882.1	874.3	871.7	867.8	861.2	856.0	849.5	845.5	839.0	837.7
15°	862.5	853.4	846.9	840.3	837.7	831.2	822.0	816.8	808.8	806.2	799.7
17.5°	829.9	820.7	811.6	808.8	804.9	795.8	786.6	780.1	772.2	768.3	764.4
20°	795.8	784.0	774.8	772.2	767.0	759.2	750.0	743.5	736.9	729.1	725.2
22.5°	756.5	743.5	735.6	729.1	727.8	718.5	708.1	702.8	697.6	691.1	685.8
25°	713.3	701.5	692.4	687.2	684.5	676.7	668.9	662.3	654.5	650.5	644.0
27.5°	668.9	661.0	649.2	644.0	640.1	633.6	624.3	620.4	612.5	607.3	603.4
30°	625.6	613.8	607.3	600.8	596.8	590.3	582.5	578.5	572.0	566.8	562.9
32.5°	578.5	570.7	561.6	558.8	553.6	547.1	541.8	535.3	530.1	524.8	523.5
35°	535.3	524.8	515.7	513.1	509.2	502.6	500.0	496.1	489.5	488.2	483.0
37.5°	488.2	483.0	472.6	468.5	467.2	462.0	456.8	454.1	450.2	446.3	445.0
40°	443.7	437.2	431.9	428.0	425.4	421.5	416.2	414.9	412.3	407.1	405.8
42.5°	401.9	395.3	390.1	388.8	384.9	380.8	378.2	374.3	373.0	371.7	369.1
45°	361.2	357.3	352.1	350.8	349.5	344.2	341.6	339.0	336.4	335.1	332.5
47.5°	324.6	320.7	316.8	315.5	312.9	311.5	307.6	306.3	302.4	301.1	299.8
50°	289.2	286.6	284.0	282.7	280.1	278.8	276.1	273.5	270.9	269.6	268.3
52.5°	257.8	255.2	252.6	251.3	250.0	247.4	244.8	242.2	240.9	239.5	238.2
55°	227.8	225.2	223.9	222.5	221.2	219.9	216.0	214.7	213.4	212.1	209.5
57.5°	200.2	197.6	195.0	195.0	193.7	192.4	189.8	187.2	187.2	184.5	181.9
60°	175.4	172.8	170.2	168.8	167.5	164.9	163.6	162.3	161.0	159.7	157.1
62.5°	149.2	147.9	145.3	145.3	142.7	141.4	140.1	138.8	137.5	134.9	133.4
65°	126.9	125.6	123.0	121.7	121.7	120.4	117.8	116.5	115.1	115.1	113.8
67.5°	106.0	104.7	102.1	100.8	100.8	99.5	98.2	98.2	96.8	95.5	96.8
70°	87.7	85.1	85.1	83.8	83.8	82.5	81.2	81.2	81.2	82.5	82.5
72.5°	69.4	68.1	66.8	66.8	66.8	66.8	65.5	65.5	66.8	68.1	68.1
75°	55.0	53.7	53.7	53.7	52.4	52.4	53.7	53.7	55.0	55.0	55.0
77.5°	40.5	40.5	40.5	40.5	40.5	40.5	41.8	41.8	43.1	43.1	43.1
80°	30.1	30.1	30.1	30.1	30.1	31.4	31.4	31.4	31.4	31.4	32.7
82.5°	20.9	20.9	20.9	20.9	20.9	20.9	20.9	22.2	22.2	22.2	22.2
85°	11.8	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
87.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
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°	964.6	964.6	964.6	964.6	964.6	964.6	964.6	964.6
2.5°	945.0	945.0	945.0	946.3	943.7	943.7	943.7	943.7
5°	922.8	921.5	920.2	921.5	918.9	918.9	917.5	917.5
7.5°	895.2	893.9	892.6	892.6	890.0	890.0	888.7	887.4
10°	865.2	862.5	863.8	861.2	859.9	858.6	857.3	856.0
12.5°	832.5	829.9	828.5	825.9	823.3	822.0	823.3	820.7
15°	797.1	793.2	791.8	789.2	786.6	785.3	785.3	784.0
17.5°	757.9	755.2	753.9	751.3	750.0	747.4	746.1	744.8
20°	721.1	714.6	715.9	713.3	712.0	706.8	706.8	708.1
22.5°	680.6	676.7	674.1	671.5	670.2	667.5	667.5	666.2
25°	640.1	636.2	634.9	632.1	630.8	628.2	626.9	626.9
27.5°	600.8	595.5	595.5	592.9	590.3	589.0	587.7	586.4
30°	558.8	554.9	553.6	553.6	552.3	552.3	548.4	549.7
32.5°	519.6	517.0	515.7	513.1	513.1	511.8	511.8	507.8
35°	480.4	476.5	477.8	475.2	473.9	472.6	473.9	472.6
37.5°	442.4	439.8	439.8	437.2	437.2	435.8	434.5	437.2
40°	404.5	403.2	401.9	400.5	401.9	400.5	397.9	399.2
42.5°	366.5	366.5	365.1	365.1	363.8	363.8	363.8	363.8
45°	332.5	331.2	331.2	329.9	329.9	329.9	329.9	328.5
47.5°	298.5	297.2	297.2	297.2	295.9	295.9	294.6	295.9
50°	265.7	265.7	264.4	264.4	265.7	264.4	263.1	263.1
52.5°	235.6	235.6	234.3	234.3	233.0	231.7	233.0	233.0
55°	208.2	206.8	205.5	205.5	204.1	202.8	202.8	204.1
57.5°	181.9	180.6	179.3	179.3	176.7	175.4	175.4	175.4
60°	157.1	154.5	154.5	153.2	153.2	151.9	151.9	151.9
62.5°	133.4	132.1	132.1	132.1	132.1	130.8	130.8	130.8
65°	113.8	113.8	113.8	115.1	115.1	116.5	116.5	116.5
67.5°	98.2	99.5	99.5	99.5	100.8	100.8	100.8	99.5
70°	83.8	83.8	83.8	85.1	85.1	85.1	85.1	85.1
72.5°	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4
75°	55.0	56.3	56.3	56.3	55.0	56.3	56.3	55.0
77.5°	43.1	43.1	43.1	43.1	43.1	43.1	43.1	43.1
80°	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7
82.5°	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2
85°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
87.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
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)