

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: P584081

Luminaire Tested: **HC820D010-HM80520935-81WWWB**

Issue Date: 10/21/2021

Test Information

Test Method: LM-41-14
Report Number: P584081
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2109-368-18)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 10/21/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO COMMERCIAL
Catalog Number: HC820D010-HM80520935-81WWWB
Description: HALO COMMERCIAL 8" ROUND, NEW CONSTRUCTION FRAME, WITH 8" WALLWASH DISTRIBUTION, BLACK BAFFLE TRIM
Light Source: (1) HIGH LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1957.5 lumens
Efficiency: N/A
Efficacy: 97.9 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.09 / 1.18
Luminous Opening: Circular (Dia: 0.67' x H: 0')
CIE Type: Direct

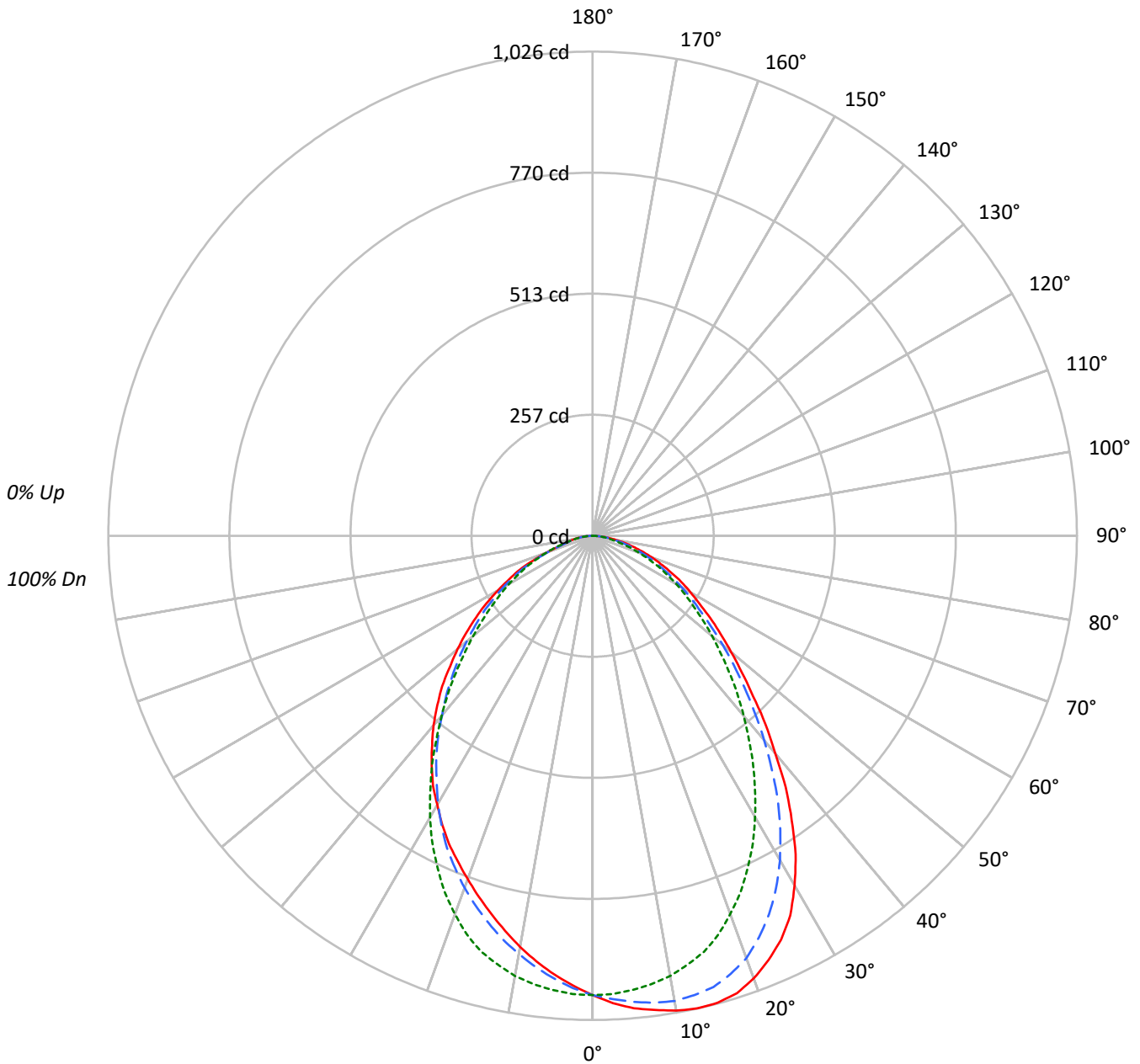
Input Watts (W): 20
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87					87			
2	102	94	88	83	99	93	87	82	89	85	81	86	82	79	83	80	77	75					75			
3	94	84	77	71	91	83	76	71	80	74	69	77	72	68	75	71	67	65					65			
4	87	76	68	62	84	75	67	61	72	66	61	70	64	60	68	63	59	57					57			
5	80	69	60	54	78	67	60	54	65	59	54	64	58	53	62	57	52	50					50			
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45					45			
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40					40			
8	65	52	45	39	64	52	44	39	51	44	39	49	43	39	48	43	38	37					37			
9	61	48	41	36	60	48	41	36	47	40	35	46	40	35	45	39	35	33					33			
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	30					30			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	30013	30013	30013
5°	31112	29914	28886
10°	31991	29652	27705
15°	32703	29131	26481
20°	32756	27991	25406
25°	32129	26433	24508
30°	30472	24515	23429
35°	27684	22327	22376
40°	24209	20034	21093
45°	20980	17845	19655
50°	18374	15850	17908
55°	16349	14048	16204
60°	14746	12618	14234
65°	13316	11098	12411
70°	11964	9350	9232
75°	10544	7411	6910
80°	8843	6126	6641
85°	6864	5378	5838



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	91.8	4.7
10°-20°	258.6	13.2
20°-30°	369.6	18.9
30°-40°	392.7	20.1
40°-50°	338.1	17.3
50°-60°	252.8	12.9
60°-70°	161.2	8.2
70°-80°	73.4	3.7
80°-90°	19.2	1.0
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°	720.0	36.8
0°-40°	1112.7	56.8
0°-60°	1703.6	87.0
0°-90°	1957.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1957.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	973	973	973	973	973	
5°	1005	991	966	942	933	96
15°	1024	990	912	850	830	289
25°	944	885	777	730	720	432
35°	735	684	593	578	594	458
45°	481	455	409	420	451	374
55°	304	279	261	283	301	273
65°	182	162	152	159	170	182
75°	88	76	62	57	58	94
85°	19	16	15	16	16	23
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°	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3
2.5°	991.2	988.5	989.9	988.5	989.9	989.9	987.1	987.1	987.1	987.1	983.0
5°	1005.1	1003.6	1003.6	1002.3	1000.9	1002.3	1000.9	999.5	996.8	995.4	991.2
7.5°	1013.3	1013.3	1013.3	1013.3	1012.0	1010.6	1009.2	1006.5	1003.6	1000.9	998.2
10°	1021.7	1023.0	1021.7	1020.3	1018.9	1016.2	1014.7	1012.0	1007.9	1003.6	1000.9
12.5°	1025.9	1025.9	1024.4	1024.4	1021.7	1020.3	1016.2	1012.0	1007.9	1003.6	996.8
15°	1024.4	1024.4	1023.0	1021.7	1017.5	1016.2	1013.3	1009.2	1002.3	996.8	989.9
17.5°	1016.2	1014.7	1012.0	1012.0	1006.5	1005.1	1002.3	996.8	989.9	981.5	973.3
20°	998.2	998.2	996.8	995.4	989.9	985.7	983.0	976.1	970.5	960.8	952.6
22.5°	973.3	976.1	973.3	970.5	963.6	962.3	958.1	949.7	941.5	930.5	920.8
25°	944.3	942.9	941.5	938.7	933.2	930.5	924.9	916.6	908.2	895.8	884.8
27.5°	906.9	901.4	901.4	895.8	891.7	887.6	884.8	876.5	865.5	855.8	841.9
30°	855.8	857.2	850.2	848.9	841.9	839.2	833.7	825.4	815.7	804.6	793.6
32.5°	800.5	796.3	796.3	790.8	785.2	781.1	779.8	770.1	761.8	750.7	739.7
35°	735.4	735.4	731.3	730.0	724.4	721.6	717.5	712.0	702.3	692.7	684.4
37.5°	671.8	669.1	667.7	665.0	660.9	656.7	656.7	647.0	645.6	634.6	623.5
40°	601.4	604.1	601.4	597.3	595.8	593.1	591.7	586.2	582.0	572.3	565.5
42.5°	541.9	539.2	539.2	537.8	532.3	532.3	529.5	526.7	519.8	517.0	508.7
45°	481.1	483.9	479.8	481.1	475.6	475.6	475.6	470.1	464.5	460.4	454.8
47.5°	428.6	430.0	430.0	425.8	424.5	424.5	421.6	418.9	414.8	409.2	405.1
50°	383.0	384.4	381.5	380.1	377.4	376.0	376.0	370.6	367.7	362.2	359.4
52.5°	341.5	341.5	340.1	340.1	335.9	335.9	333.2	329.1	326.2	323.5	316.5
55°	304.1	304.1	302.7	301.4	301.4	297.3	295.9	291.7	289.0	283.4	279.3
57.5°	268.2	269.6	268.2	266.8	265.5	264.1	261.3	257.2	254.4	250.2	247.5
60°	239.1	239.1	237.8	236.4	233.7	232.3	230.8	228.1	224.0	221.2	217.0
62.5°	211.6	210.2	208.7	207.3	204.6	204.6	201.9	199.0	194.9	192.2	189.4
65°	182.5	182.5	181.1	181.1	179.8	176.9	175.5	174.2	168.7	167.3	161.7
67.5°	156.3	157.6	154.8	154.8	152.1	152.1	150.7	146.6	145.1	142.4	139.6
70°	132.7	132.7	132.7	131.3	128.6	127.2	125.8	123.0	121.6	118.9	116.1
72.5°	109.2	109.2	107.8	107.8	106.5	105.1	103.7	100.9	100.9	98.1	95.4
75°	88.5	88.5	87.1	85.7	84.3	84.3	83.0	81.6	78.8	77.4	76.0
77.5°	67.7	67.7	67.7	66.3	65.0	65.0	65.0	62.2	59.5	59.5	58.0
80°	49.8	49.8	48.3	48.3	47.0	47.0	47.0	45.6	44.2	42.9	41.5
82.5°	33.2	33.2	33.2	33.2	31.8	31.8	31.8	30.4	29.1	29.1	29.1
85°	19.4	19.4	19.4	19.4	18.0	18.0	18.0	18.0	18.0	16.5	16.5
87.5°	8.3	6.9	8.3	6.9	8.3	6.9	8.3	6.9	6.9	6.9	6.9
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°	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3
2.5°	984.4	983.0	981.5	980.2	980.2	978.8	976.1	974.7	973.3	971.8	971.8
5°	989.9	988.5	985.7	983.0	981.5	978.8	976.1	973.3	970.5	966.4	965.0
7.5°	994.1	989.9	987.1	981.5	980.2	977.4	973.3	969.1	963.6	958.1	953.9
10°	994.1	988.5	984.4	977.4	974.7	971.8	966.4	959.4	952.6	947.0	940.0
12.5°	991.2	984.4	977.4	970.5	966.4	962.3	953.9	947.0	938.7	930.5	924.9
15°	981.5	973.3	965.0	956.7	952.6	947.0	938.7	929.1	920.8	912.5	902.8
17.5°	963.6	955.3	945.6	935.9	930.5	926.3	913.8	906.9	894.4	886.1	877.9
20°	940.0	930.5	917.9	908.2	901.4	897.3	887.6	875.2	865.5	853.0	844.7
22.5°	909.7	897.3	884.8	875.2	868.2	862.6	850.2	837.8	829.5	818.4	808.7
25°	873.7	861.3	848.9	835.1	828.1	822.6	811.6	800.5	789.5	776.9	768.7
27.5°	830.8	817.0	806.0	793.6	786.6	778.3	765.9	754.8	743.8	735.4	724.4
30°	783.9	768.7	757.7	745.1	738.3	731.3	718.9	707.8	698.2	688.5	683.0
32.5°	727.2	716.2	705.1	692.7	687.1	683.0	670.5	659.4	648.4	640.1	635.9
35°	673.3	660.9	651.2	640.1	633.2	629.1	617.9	608.3	602.8	593.1	587.6
37.5°	616.6	607.0	595.8	584.9	580.6	576.5	568.2	558.5	550.2	543.4	540.5
40°	557.2	548.8	539.2	532.3	528.1	524.0	517.0	510.2	504.6	497.7	494.9
42.5°	500.5	494.9	486.6	478.4	474.2	472.8	464.5	459.0	456.3	453.4	450.7
45°	449.3	441.0	435.4	430.0	425.8	423.0	418.9	414.8	411.9	409.2	406.5
47.5°	399.5	392.7	387.1	383.0	378.8	377.4	374.7	370.6	367.7	367.7	367.7
50°	353.9	348.3	342.9	340.1	338.8	335.9	333.2	331.8	330.4	330.4	330.4
52.5°	313.8	308.3	304.1	301.4	301.4	298.6	295.9	294.4	294.4	294.4	294.4
55°	276.5	272.3	269.6	266.8	264.1	262.6	262.6	262.6	261.3	261.3	262.6
57.5°	243.4	240.5	236.4	233.7	232.3	232.3	230.8	229.5	230.8	232.3	233.7
60°	212.9	210.2	208.7	204.6	204.6	204.6	203.2	203.2	203.2	204.6	206.0
62.5°	185.2	183.9	181.1	179.8	178.4	178.4	176.9	176.9	176.9	176.9	178.4
65°	160.4	157.6	154.8	154.8	154.8	153.4	153.4	150.7	152.1	152.1	150.7
67.5°	136.9	134.2	132.7	131.3	129.9	129.9	128.6	127.2	125.8	125.8	125.8
70°	114.8	111.9	111.9	109.2	109.2	107.8	106.5	106.5	105.1	103.7	102.4
72.5°	92.7	91.3	89.8	88.5	88.5	88.5	87.1	85.7	84.3	83.0	80.1
75°	73.3	73.3	70.6	69.1	69.1	67.7	66.3	65.0	63.6	62.2	60.9
77.5°	56.7	55.3	52.5	51.2	51.2	51.2	49.8	48.3	47.0	45.6	44.2
80°	41.5	40.1	38.7	37.4	37.4	37.4	35.9	35.9	34.5	34.5	34.5
82.5°	27.7	27.7	26.2	26.2	26.2	26.2	24.9	24.9	24.9	24.9	24.9
85°	16.5	16.5	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.2
87.5°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3
2.5°	969.1	969.1	966.4	965.0	963.6	965.0	962.3	960.8	959.4	959.4	958.1
5°	960.8	959.4	953.9	952.6	951.2	949.7	947.0	944.3	941.5	940.0	938.7
7.5°	949.7	945.6	940.0	938.7	937.3	933.2	929.1	926.3	922.1	920.8	917.9
10°	934.6	929.1	924.9	920.8	917.9	913.8	909.7	905.5	900.0	898.7	894.4
12.5°	916.6	909.7	901.4	900.0	895.8	890.3	884.8	880.7	876.5	873.7	869.6
15°	894.4	887.6	879.3	875.2	871.0	866.9	859.9	854.3	850.2	846.1	841.9
17.5°	868.2	859.9	853.0	848.9	846.1	839.2	833.7	826.7	822.6	818.4	814.3
20°	836.4	829.5	819.8	815.7	814.3	808.7	801.9	799.0	793.6	789.5	786.6
22.5°	800.5	793.6	785.2	782.5	776.9	774.2	767.2	764.5	761.8	757.7	756.2
25°	760.4	753.4	746.6	745.1	741.0	738.3	734.1	730.0	730.0	725.9	725.9
27.5°	718.9	712.0	706.5	703.6	702.3	699.5	695.4	694.1	692.7	691.2	691.2
30°	674.7	666.4	663.6	662.3	660.9	658.0	656.7	653.9	655.3	656.7	655.3
32.5°	627.6	624.9	619.4	616.6	617.9	616.6	613.8	616.6	615.2	617.9	619.4
35°	582.0	579.3	576.5	576.5	573.7	573.7	573.7	575.2	577.9	579.3	582.0
37.5°	537.8	533.7	532.3	530.8	532.3	532.3	532.3	535.0	537.8	540.5	544.7
40°	490.8	488.0	488.0	488.0	488.0	492.2	490.8	493.6	496.3	500.5	504.6
42.5°	446.6	446.6	448.0	448.0	448.0	448.0	450.7	454.8	459.0	463.1	467.2
45°	405.1	405.1	405.1	407.8	407.8	409.2	414.8	417.5	420.3	424.5	428.6
47.5°	366.4	366.4	367.7	369.1	370.6	373.3	376.0	380.1	384.4	387.1	391.2
50°	330.4	331.8	334.5	337.3	337.3	338.8	342.9	345.6	348.3	352.6	353.9
52.5°	295.9	298.6	301.4	302.7	304.1	307.0	308.3	312.4	313.8	318.0	319.4
55°	264.1	265.5	269.6	270.9	270.9	273.8	276.5	279.3	283.4	283.4	286.2
57.5°	235.0	236.4	239.1	240.5	239.1	243.4	244.7	247.5	248.8	251.6	252.9
60°	206.0	208.7	210.2	210.2	211.6	212.9	215.7	215.7	218.4	221.2	221.2
62.5°	178.4	179.8	181.1	182.5	183.9	182.5	186.6	186.6	189.4	190.8	193.5
65°	152.1	153.4	153.4	154.8	154.8	156.3	156.3	157.6	159.0	161.7	163.1
67.5°	125.8	125.8	125.8	127.2	125.8	127.2	127.2	128.6	128.6	131.3	132.7
70°	102.4	100.9	99.5	99.5	99.5	99.5	98.1	99.5	99.5	100.9	100.9
72.5°	78.8	77.4	76.0	74.7	74.7	73.3	71.9	73.3	73.3	74.7	74.7
75°	59.5	56.7	56.7	56.7	55.3	55.3	55.3	56.7	56.7	56.7	58.0
77.5°	44.2	44.2	42.9	42.9	42.9	44.2	44.2	45.6	45.6	45.6	45.6
80°	33.2	34.5	34.5	34.5	34.5	35.9	35.9	35.9	35.9	37.4	37.4
82.5°	24.9	24.9	24.9	24.9	26.2	26.2	26.2	26.2	26.2	26.2	26.2
85°	15.2	16.5	16.5	15.2	16.5	16.5	16.5	16.5	16.5	16.5	16.5
87.5°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
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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CATALOG NUMBER: HC820D010-HM80520935-81WWWB

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	973.3	973.3	973.3	973.3	973.3	973.3	973.3	973.3
2.5°	956.7	956.7	956.7	956.7	955.3	955.3	955.3	953.9
5°	935.9	935.9	935.9	933.2	934.6	934.6	931.8	933.2
7.5°	915.2	913.8	912.5	912.5	911.1	909.7	908.2	909.7
10°	891.7	887.6	887.6	886.1	886.1	883.4	883.4	884.8
12.5°	865.5	862.6	862.6	861.3	859.9	858.5	857.2	857.2
15°	839.2	836.4	835.1	833.7	832.2	829.5	830.8	829.5
17.5°	812.9	808.7	808.7	807.4	806.0	803.3	803.3	801.9
20°	782.5	781.1	778.3	779.8	778.3	775.6	774.2	774.2
22.5°	752.1	752.1	750.7	750.7	749.3	748.0	746.6	746.6
25°	723.0	721.6	723.0	723.0	718.9	718.9	718.9	720.3
27.5°	689.8	691.2	689.8	689.8	689.8	689.8	691.2	689.8
30°	656.7	656.7	656.7	658.0	660.9	659.4	659.4	658.0
32.5°	620.8	622.1	622.1	623.5	624.9	627.6	627.6	629.1
35°	584.9	587.6	589.0	587.6	591.7	591.7	594.4	594.4
37.5°	547.5	548.8	551.6	553.1	555.8	557.2	558.5	558.5
40°	507.4	512.9	514.3	515.7	519.8	519.8	521.1	524.0
42.5°	470.1	475.6	476.9	478.4	481.1	485.2	483.9	486.6
45°	434.1	438.3	439.6	441.0	445.1	446.6	446.6	450.7
47.5°	395.4	398.2	399.5	402.4	405.1	407.8	410.6	409.2
50°	356.7	360.9	363.6	365.0	369.1	370.6	371.9	373.3
52.5°	322.1	324.9	326.2	327.7	331.8	333.2	334.5	337.3
55°	289.0	290.3	293.1	291.7	295.9	297.3	298.6	301.4
57.5°	255.8	257.2	258.5	258.5	261.3	264.1	265.5	266.8
60°	224.0	226.7	228.1	228.1	228.1	230.8	230.8	230.8
62.5°	194.9	194.9	196.3	196.3	199.0	199.0	199.0	199.0
65°	164.5	166.0	167.3	167.3	170.1	168.7	171.4	170.1
67.5°	132.7	132.7	135.5	135.5	134.2	135.5	135.5	135.5
70°	100.9	100.9	102.4	102.4	102.4	102.4	102.4	102.4
72.5°	74.7	74.7	74.7	76.0	74.7	74.7	76.0	74.7
75°	58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
77.5°	45.6	45.6	47.0	47.0	47.0	47.0	47.0	47.0
80°	37.4	37.4	37.4	37.4	38.7	37.4	37.4	37.4
82.5°	27.7	26.2	27.7	26.2	27.7	27.7	27.7	27.7
85°	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
87.5°	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
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)