

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: HALO

Report Number: G1-1712-448-4

Luminaire Tested: **FTS20CB**

Test Date: 02/09/18



Test Information

Test Method: LM-79-08
Report Number: G1-1712-448-4
Test Lab: INNOVATION CENTER(G1)
Test Date: 02/09/18
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: FTS20CB
Description: FLOOD TWIN HEAD LED
Light Source: (2) PCB ARRAY
Ballast/Driver: (1) TCL ELECTRONIC DRIVER
021W0A54-R/1J/08

Summary

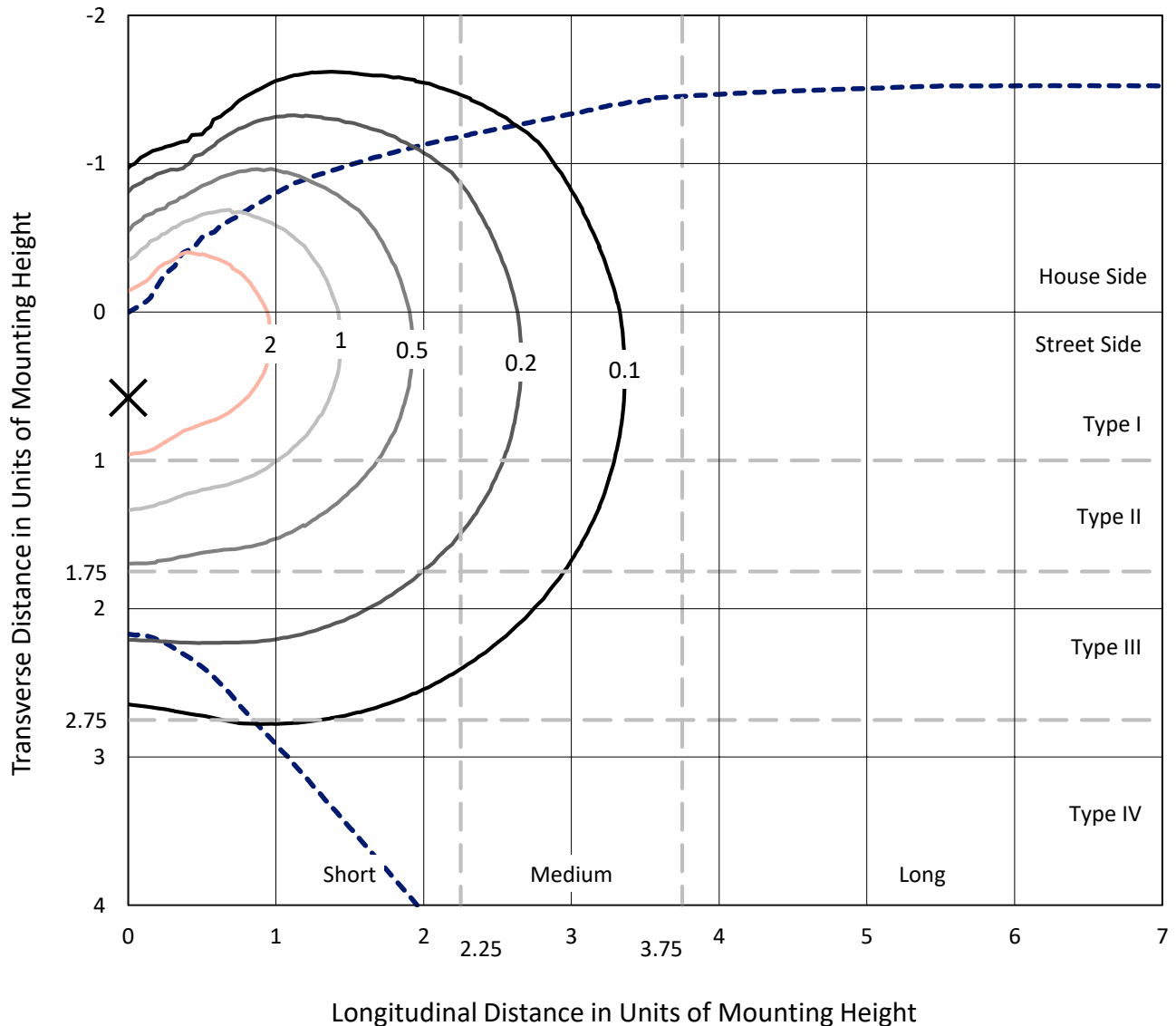
Lumens per Lamp: N/A
Luminaire Lumens: 2080.6 lumens
Efficiency: N/A
Efficacy: 91.3 lumens/watt
Luminous Opening: Rectangular w/ Sides (W: 0.83' x L: 0.38' x H: 0.25')
IES Classification: Type IV - Short - Non-Cutoff
BUG Rating: B1 - U3 - G2

Input Watts (W): 22.8
Input Voltage (V): 120.0
Input Current (A_{in}): 0.191
Voltage Rise (V): NR
Power Factor: 0.9966
Total Harmonic Distortion (THDi): 8.12%
Frequency (hertz): 60
Stabilization Time: 0.5 HR
Operation Time: 7.0 HR
Ambient Temperature (°C): 24.6
Test Distance: 28.75 FT

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Iso-Footcandle Lines of Horizontal Illumination

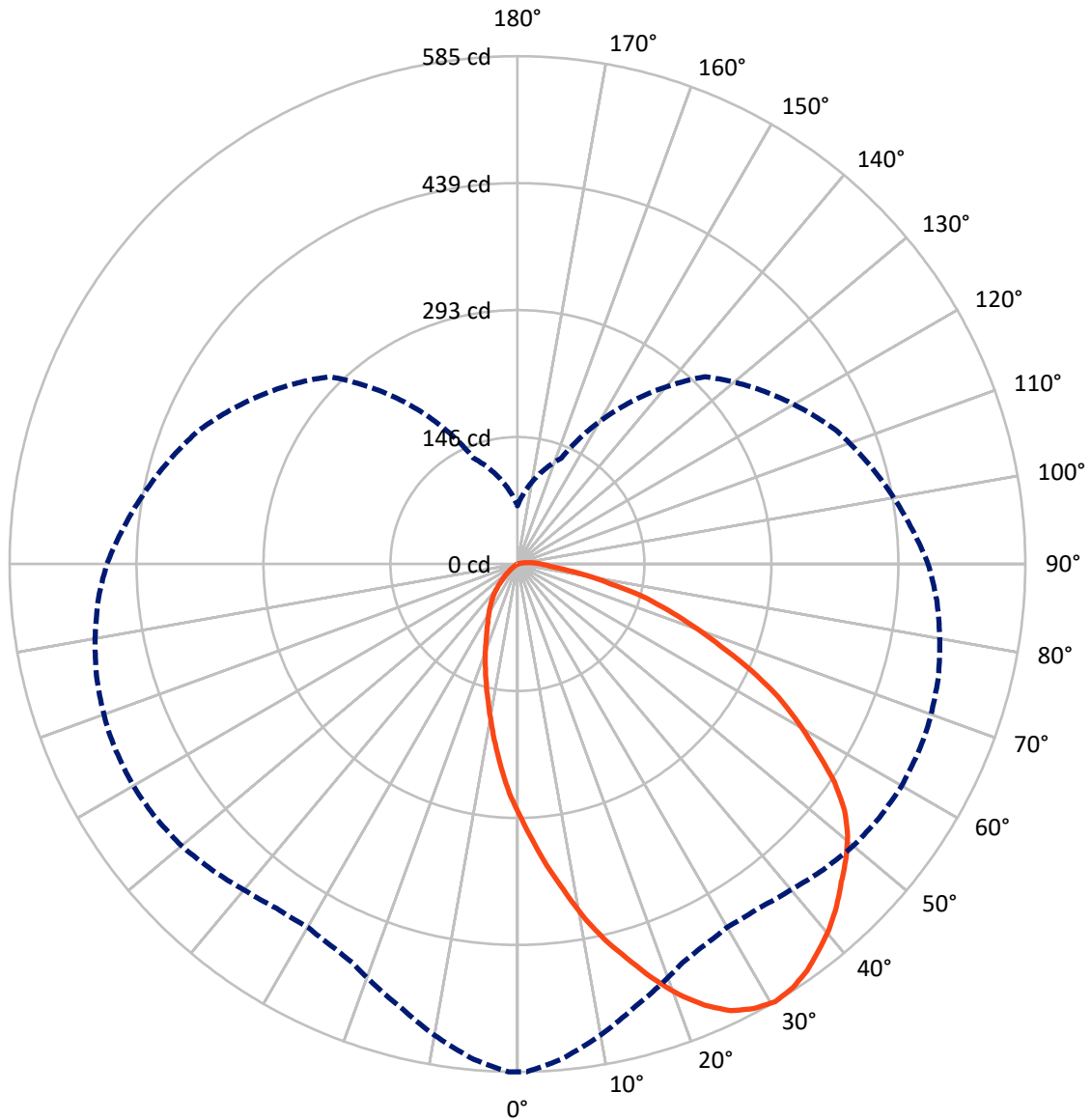
× Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.4 fc
 Type IV - Short - Non-Cutoff

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Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 30-Deg Vertical

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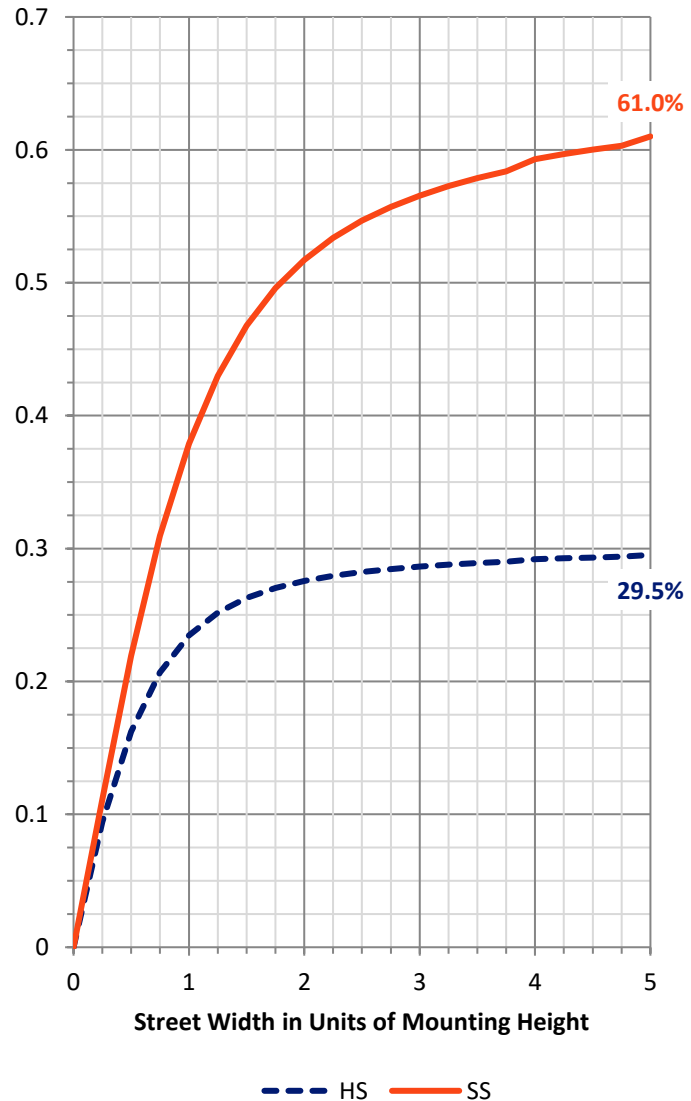
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	628.1	29.2	657.3
	% Fixture	30.2	1.4	31.6
Street Side	Lumens	1333.1	90.1	1423.2
	% Fixture	64.1	4.3	68.4
Total	Lumens	1961.2	119.4	2080.6
	% Fixture	94.3	5.7	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	29.9	1.4
10°-20°	102.4	4.9
20°-30°	178.7	8.6
30°-40°	247.1	11.9
40°-50°	300.9	14.5
50°-60°	328.7	15.8
60°-70°	313.9	15.1
70°-80°	266.1	12.8
80°-90°	193.4	9.3
90°-100°	82.4	4.0
100°-110°	25.3	1.2
110°-120°	10.9	0.5
120°-130°	0.7	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°-90°	1961.2	94.3
0°-180°	2080.6	100.0



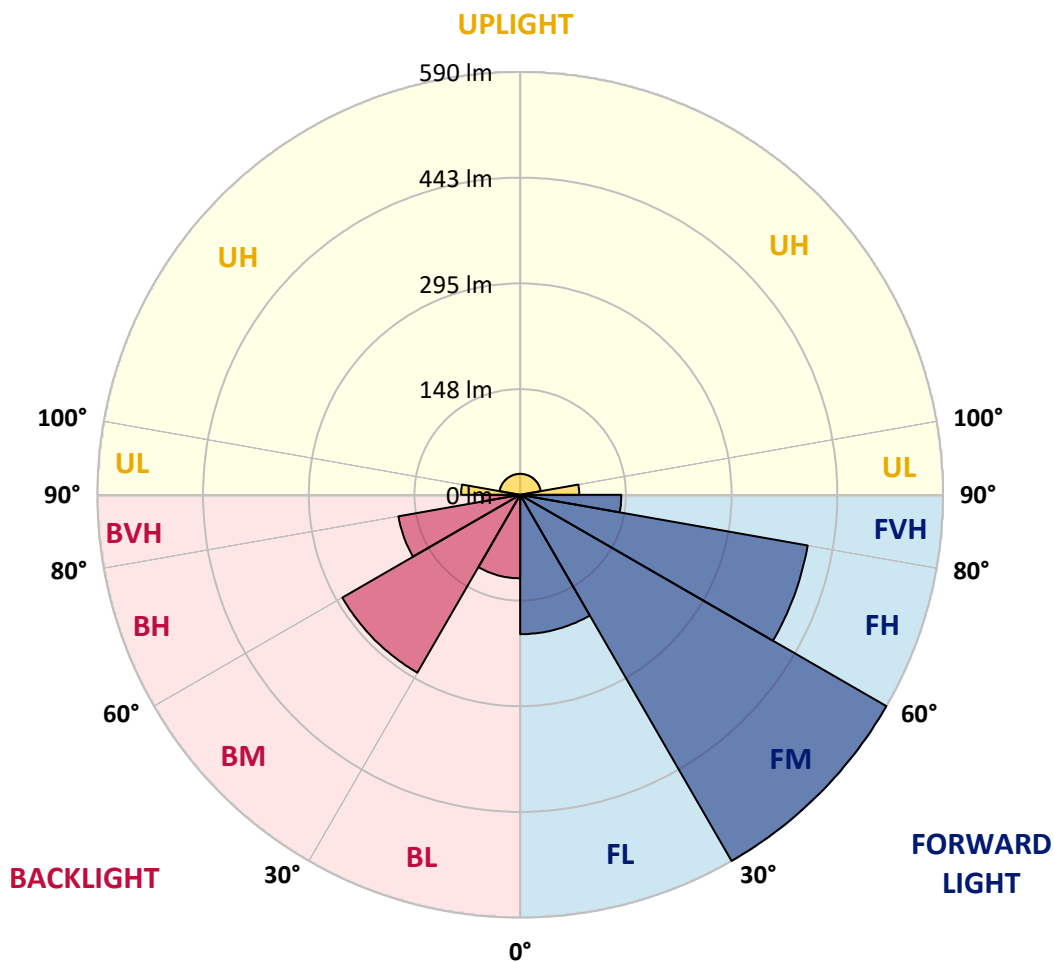
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	194.5	9.3			
FM (30°-60°)	590.1	28.4			
FH (60°-80°)	407.4	19.6			G0/660
FVH (80°-90°)	141.1	6.8			G2/225
BL (0°-30°)	116.5	5.6	B1/500		
BM (30°-60°)	286.6	13.8	B1/1000		
BH (60°-80°)	172.7	8.3	B1/500		G1/500
BVH (80°-90°)	52.3	2.5			G1/100
UL (90°-100°)	82.4	4.0		U3/500	
UH (100°-180°)	29.2	1.4		U2/50	

BUG Rating: B1-U3-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

	0°	1°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°
0°	289	289	289	289	289	289	289	289	289	289	289
2.5°	317	318	317	316	316	316	316	317	315	314	314
5°	348	347	348	348	348	348	347	348	347	346	344
7.5°	378	379	378	378	380	379	378	379	378	377	376
10°	412	411	409	410	412	410	411	411	410	409	408
12.5°	443	442	442	441	440	442	441	441	439	436	435
15°	471	472	471	471	470	467	464	463	457	452	448
17.5°	501	501	499	497	492	485	480	476	466	460	455
20°	529	529	525	518	508	494	487	481	471	465	462
22.5°	552	551	546	534	516	499	491	485	475	470	468
25°	570	569	561	543	521	503	495	488	478	476	476
27.5°	580	580	569	547	525	506	497	490	481	480	483
30°	585	585	573	551	527	507	497	491	483	484	490
32.5°	582	582	572	552	526	504	495	489	484	488	496
35°	575	574	568	549	523	501	492	487	484	490	501
37.5°	564	564	561	543	517	495	487	483	483	492	506
40°	553	552	549	534	509	488	480	477	480	494	510
42.5°	539	539	535	523	499	478	472	471	479	496	515
45°	523	524	520	508	485	467	464	465	478	499	518
47.5°	509	509	502	488	469	456	455	459	477	500	518
50°	493	494	482	468	452	443	446	453	475	498	516
52.5°	472	473	458	447	432	430	437	447	471	494	513
55°	443	442	435	421	412	418	426	439	464	487	507
57.5°	406	407	408	394	395	403	414	428	455	479	498
60°	372	372	374	371	373	388	400	416	443	467	488
62.5°	337	337	336	349	351	372	387	402	429	452	473
65°	296	295	299	317	332	355	369	384	411	435	456
67.5°	253	253	266	286	309	336	350	363	390	414	435
70°	215	216	228	253	287	314	328	341	367	393	416
72.5°	181	182	190	220	266	293	307	321	348	375	399
75°	149	149	156	191	241	274	288	302	330	358	382
77.5°	110	112	124	165	214	255	270	284	313	340	365
80°	82	81	98	138	184	232	248	265	294	322	347
82.5°	56	58	73	112	157	206	226	244	275	303	327
85°	40	41	54	86	127	173	198	216	247	273	295
87.5°	32	32	39	61	96	136	160	177	208	234	253
90°	26	26	28	41	67	101	118	138	167	190	209
92.5°	21	21	21	27	44	69	82	98	125	146	164
95°	16	16	17	20	30	46	54	66	86	105	122
97.5°	11	11	12	16	22	31	37	43	57	71	84
100°	7	7	9	13	18	24	27	31	40	50	60
102.5°	4	4	6	10	15	20	23	26	30	37	44
105°	2	2	3	7	12	17	20	22	27	31	35
107.5°	1	1	2	5	9	13	16	19	23	28	31
110°	0	0	1	3	6	10	12	15	19	24	28



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CANDELA DISTRIBUTION (continued):

	0°	1°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°
112.5°	0	0	0	1	3	7	8	11	15	19	23
115°	0	0	0	0	2	4	6	7	11	15	18
117.5°	0	0	0	0	0	2	3	4	7	11	14
120°	0	0	0	0	0	1	1	2	4	7	10
122.5°	0	0	0	0	0	0	0	0	0	0	0
125°	0	0	0	0	0	0	0	0	0	0	0
127.5°	0	0	0	0	0	0	0	0	0	0	0
130°	0	0	0	0	0	0	0	0	0	0	0
132.5°	0	0	0	0	0	0	0	0	0	0	0
135°	0	0	0	0	0	0	0	0	0	0	0
137.5°	0	0	0	0	0	0	0	0	0	0	0
140°	0	0	0	0	0	0	0	0	0	0	0
142.5°	0	0	0	0	0	0	0	0	0	0	0
145°	0	0	0	0	0	0	0	0	0	0	0
147.5°	0	0	0	0	0	0	0	0	0	0	0
150°	0	0	0	0	0	0	0	0	0	0	0
152.5°	0	0	0	0	0	0	0	0	0	0	0
155°	0	0	0	0	0	0	0	0	0	0	0
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	45°	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	289	289	289	289	289	289	289	289	289	289	289
2.5°	312	311	310	307	306	305	304	302	299	297	295
5°	342	340	337	334	332	330	328	324	321	316	311
7.5°	374	371	370	367	364	363	361	357	351	344	338
10°	407	406	404	401	398	396	392	388	382	375	368
12.5°	432	429	427	424	420	418	415	412	406	400	395
15°	445	440	437	435	431	431	429	426	422	417	411
17.5°	452	449	446	446	445	445	443	441	436	429	423
20°	460	458	459	460	460	459	457	453	448	441	432
22.5°	468	470	473	475	474	474	471	466	460	452	442
25°	478	483	487	488	488	486	484	479	472	463	453
27.5°	489	495	498	500	499	498	496	491	483	474	463
30°	498	505	509	511	510	509	507	502	494	485	473
32.5°	506	513	517	521	520	519	517	512	503	494	481
35°	513	521	526	530	530	530	527	523	513	502	488
37.5°	518	527	535	541	542	541	540	534	524	511	497
40°	525	536	545	552	554	553	551	545	536	522	505
42.5°	530	543	553	560	563	563	561	555	546	532	515
45°	534	547	558	566	569	569	568	562	553	538	522
47.5°	534	548	560	569	574	574	572	567	556	542	526
50°	532	548	560	571	576	576	575	570	559	545	528
52.5°	529	545	559	570	575	576	574	570	558	544	527
55°	523	540	554	567	572	573	571	566	555	541	524
57.5°	515	532	548	560	566	567	566	561	549	535	518
60°	505	522	538	551	556	558	556	551	540	526	509
62.5°	491	508	525	538	544	544	544	539	527	513	496
65°	474	492	508	520	526	527	526	521	510	496	480
67.5°	454	471	489	500	506	507	506	500	490	476	460
70°	436	455	471	483	489	489	489	483	473	459	442
72.5°	420	439	455	466	472	472	471	465	456	441	424
75°	403	422	437	448	454	455	454	448	439	425	408
77.5°	386	405	421	431	437	437	436	432	422	408	391
80°	369	388	402	413	418	420	419	414	405	391	373
82.5°	348	366	380	391	395	396	396	391	382	369	352
85°	314	332	345	353	359	359	359	355	347	335	319
87.5°	272	286	299	306	312	311	313	309	302	291	278
90°	224	237	248	257	259	261	260	258	253	242	231
92.5°	178	189	198	205	212	211	212	209	203	195	184
95°	136	146	155	161	164	163	164	164	158	151	142
97.5°	95	105	113	118	120	121	122	120	114	109	102
100°	68	76	81	86	88	89	89	88	85	79	73
102.5°	51	56	62	65	67	67	68	66	64	60	53
105°	38	43	46	49	51	51	51	50	48	45	41
107.5°	35	37	39	41	41	42	42	41	40	38	35
110°	31	34	36	37	38	38	38	37	36	34	32



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CANDELA DISTRIBUTION (continued):

	45°	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	27	29	32	33	34	34	34	34	32	30	28
115°	22	25	27	28	29	30	30	29	27	25	23
117.5°	16	19	22	23	24	24	24	23	22	20	18
120°	12	15	17	18	19	19	19	18	17	15	13
122.5°	0	0	0	0	0	0	0	0	0	0	0
125°	0	0	0	0	0	0	0	0	0	0	0
127.5°	0	0	0	0	0	0	0	0	0	0	0
130°	0	0	0	0	0	0	0	0	0	0	0
132.5°	0	0	0	0	0	0	0	0	0	0	0
135°	0	0	0	0	0	0	0	0	0	0	0
137.5°	0	0	0	0	0	0	0	0	0	0	0
140°	0	0	0	0	0	0	0	0	0	0	0
142.5°	0	0	0	0	0	0	0	0	0	0	0
145°	0	0	0	0	0	0	0	0	0	0	0
147.5°	0	0	0	0	0	0	0	0	0	0	0
150°	0	0	0	0	0	0	0	0	0	0	0
152.5°	0	0	0	0	0	0	0	0	0	0	0
155°	0	0	0	0	0	0	0	0	0	0	0
157.5°	0	0	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
0°	289	289	289	289
2.5°	285	274	266	264
5°	289	264	243	236
7.5°	302	259	224	209
10°	322	260	207	184
12.5°	348	268	193	162
15°	369	278	183	143
17.5°	381	289	175	126
20°	387	297	167	111
22.5°	390	302	159	96
25°	393	306	151	85
27.5°	396	307	142	75
30°	399	305	132	67
32.5°	402	300	121	60
35°	404	294	109	53
37.5°	407	288	98	46
40°	409	281	87	39
42.5°	410	274	76	31
45°	411	266	65	24
47.5°	410	259	54	18
50°	410	252	46	12
52.5°	409	245	37	8
55°	406	235	29	4
57.5°	400	218	23	1
60°	391	198	17	0
62.5°	380	178	14	0
65°	365	159	11	0
67.5°	348	140	9	0
70°	328	121	7	0
72.5°	309	102	5	0
75°	292	82	3	0
77.5°	274	65	2	0
80°	255	49	1	0
82.5°	234	34	0	0
85°	207	23	0	0
87.5°	171	17	0	0
90°	130	14	0	0
92.5°	93	12	0	0
95°	63	9	0	0
97.5°	42	7	0	0
100°	30	5	0	0
102.5°	24	3	0	0
105°	21	1	0	0
107.5°	18	1	0	0
110°	14	0	0	0



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CANDELA DISTRIBUTION (continued):

	112.5°	135°	157.5°	180°
112.5°	10	0	0	0
115°	7	0	0	0
117.5°	4	0	0	0
120°	2	0	0	0
122.5°	0	0	0	0
125°	0	0	0	0
127.5°	0	0	0	0
130°	0	0	0	0
132.5°	0	0	0	0
135°	0	0	0	0
137.5°	0	0	0	0
140°	0	0	0	0
142.5°	0	0	0	0
145°	0	0	0	0
147.5°	0	0	0	0
150°	0	0	0	0
152.5°	0	0	0	0
155°	0	0	0	0
157.5°	0	0	0	0
160°	0	0	0	0
162.5°	0	0	0	0
165°	0	0	0	0
167.5°	0	0	0	0
170°	0	0	0	0
172.5°	0	0	0	0
175°	0	0	0	0
177.5°	0	0	0	0
180°	0	0	0	0

(END OF REPORT)