

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: FAIL-SAFE

Report Number: P27172

Luminaire Tested: **FMB-N-2-LD4-1DN/LO-40-UNV-80/86**

Test Date: 12/07/15

Test Information

Test Method: LM-79-08
Report Number: P27172
Test Lab: INNOVATION CENTER-P2
Test Date: 12/07/15
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMB-N-2-LD4-1DN/LO-40-UNV-80/86
Description: FAILSAFE LED 2FT FMB WALL MOUNT CORRECTIONAL LUMINAIRE
Light Source: (42) LUMILEDS 4000K LEDS
2UT217042A8404A
Ballast/Driver: (1) OSRAM ELECTRONIC DRIVER
OT25W

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 890.3 lumens
Efficiency: N/A
Efficacy: 70.1 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.26
Luminous Opening: Rectangular w/ Sides (W: 1.75' x L: 0.29' x H: 0.04')
CIE Type: Direct

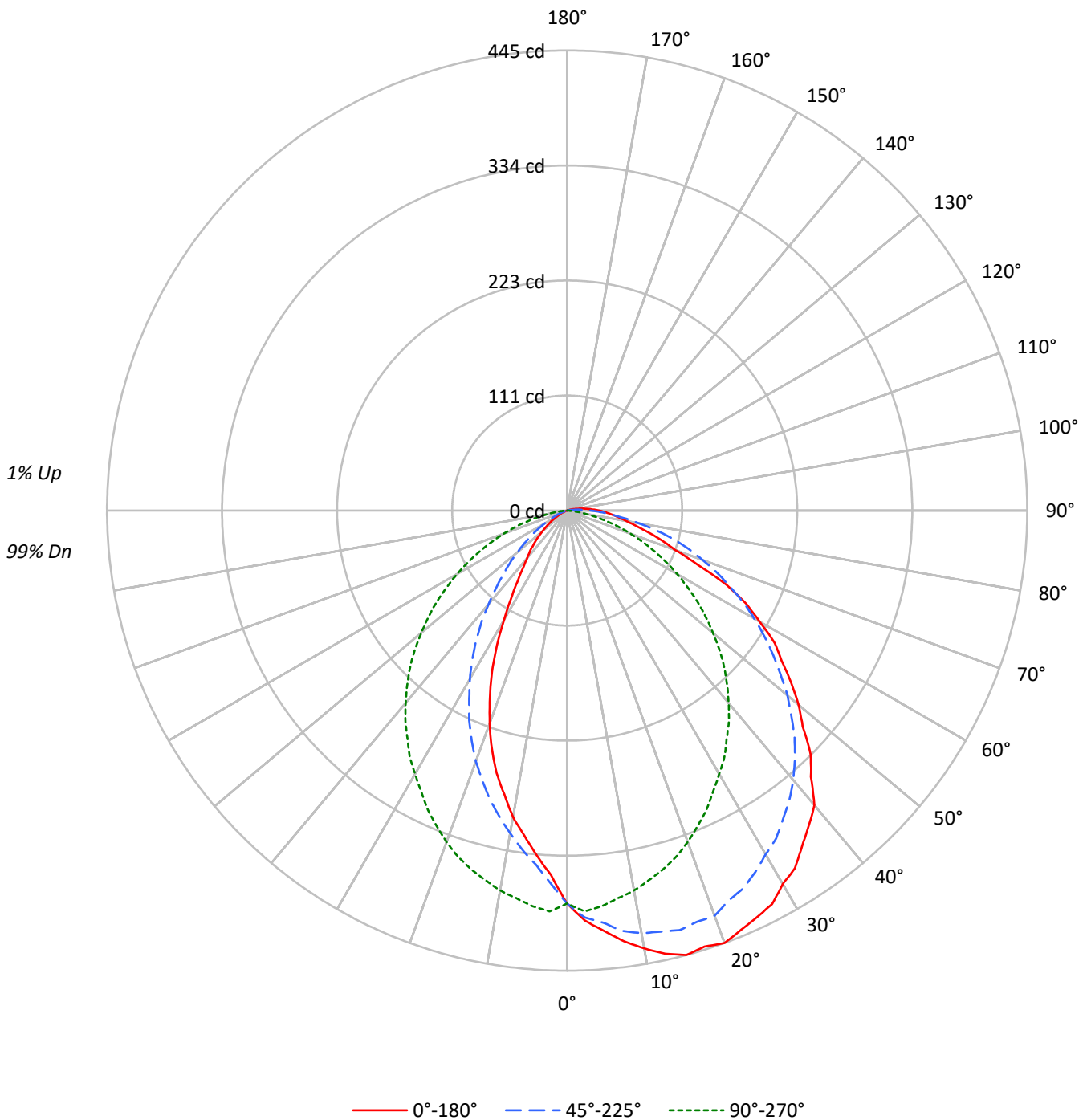
Input Watts (W): 12.7
Input Voltage (V): 120.05
Input Current (A_{in}): 0.10660
Voltage Rise (V): NR
Power Factor: 0.9928
Total Harmonic Distortion (THDi): 5.80%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: 24 HR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	101	101	101	99
1	109	104	100	97	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	76	73	71
3	91	81	73	67	89	80	72	67	77	70	65	74	68	64	71	67	63	61
4	84	72	64	58	82	71	63	57	68	62	56	66	60	55	64	59	55	52
5	77	65	56	50	75	64	56	50	62	55	49	60	53	49	58	52	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	40
7	67	54	45	39	65	53	45	39	51	44	39	50	43	38	48	42	38	36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	32
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	8014	8014	8014
5°	8530	8112	7004
10°	8982	7954	6287
15°	9357	7788	5530
20°	9493	7587	4672
25°	9468	7341	3752
30°	9381	7062	2744
35°	9268	6812	1966
40°	9145	6559	1475
45°	8690	6263	1174
50°	8186	5870	869
55°	7726	5476	611
60°	7269	4982	372
65°	6494	4415	229
70°	4915	3762	0
75°	4305	2918	0
80°	3891	1926	0
85°	3952	951	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.6	4.0
10°-20°	99.9	11.2
20°-30°	143.6	16.1
30°-40°	160.8	18.1
40°-50°	155.0	17.4
50°-60°	129.8	14.6
60°-70°	91.3	10.3
70°-80°	48.2	5.4
80°-90°	19.5	2.2
90°-100°	5.7	0.6
100°-110°	1.0	0.1
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°	279.1	31.3
0°-40°	439.9	49.4
0°-60°	724.7	81.4
0°-90°	883.7	99.3
90°-120°	6.6	0.7
90°-150°	6.6	0.7
90°-180°	7.0	0.8
0°-180°	890.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	380	380	380	380	380	
5°	408	400	384	344	335	40
15°	445	420	359	289	263	125
25°	434	403	319	224	172	200
35°	396	364	269	153	84	248
45°	333	311	215	87	45	255
55°	253	243	154	42	20	228
65°	170	173	93	13	6	164
75°	81	106	39	1	0	87
85°	43	42	5	0	0	38
90°	31	23	0	0	0	17
95°	19	10	0	0	0	14
105°	5	0	0	0	0	5
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	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°	380	380	380	380	380	380	380	380	380	380	380
2.5°	397	397	396	394	395	396	393	395	395	394	394
5°	408	410	408	409	404	407	408	406	404	402	400
7.5°	420	422	420	419	420	420	418	418	416	410	410
10°	430	431	428	428	425	426	423	422	421	417	415
12.5°	439	437	434	433	435	430	434	426	425	421	417
15°	445	446	444	441	438	436	435	433	427	422	420
17.5°	442	444	442	440	439	438	436	432	425	422	417
20°	445	446	443	441	437	435	433	428	423	419	417
22.5°	439	441	440	433	431	433	429	424	417	413	408
25°	434	433	432	436	430	428	423	418	416	407	403
27.5°	429	430	427	423	419	419	417	414	408	399	394
30°	417	419	418	418	415	413	412	402	400	391	384
32.5°	410	412	410	409	403	398	397	395	391	382	376
35°	396	403	397	392	397	393	392	385	379	370	364
37.5°	384	388	387	386	383	381	377	374	368	362	353
40°	372	375	372	370	365	368	367	362	355	347	340
42.5°	349	353	352	356	354	352	349	345	339	334	326
45°	333	337	336	332	330	331	333	328	322	316	311
47.5°	309	310	311	311	317	313	311	308	305	300	294
50°	292	296	297	294	291	291	293	291	288	284	278
52.5°	273	275	273	272	273	275	275	271	269	265	260
55°	253	257	255	259	256	253	252	255	250	248	243
57.5°	238	240	238	237	236	237	237	235	235	230	226
60°	215	218	217	218	220	220	219	217	213	213	209
62.5°	195	194	196	198	200	200	199	200	196	195	192
65°	170	169	172	175	176	181	182	181	179	178	173
67.5°	136	134	139	146	154	156	157	163	161	161	157
70°	111	111	113	117	123	127	132	140	141	143	139
72.5°	96	96	97	98	101	103	106	115	119	125	123
75°	81	82	83	84	86	87	89	92	97	105	106
77.5°	68	68	69	70	73	74	75	77	79	85	88
80°	58	57	58	59	61	62	63	65	66	68	70
82.5°	50	49	49	49	51	51	52	54	54	55	55
85°	43	43	42	42	41	42	42	43	44	44	42
87.5°	37	37	36	36	35	34	34	33	34	34	32
90°	31	31	30	29	29	28	27	26	25	24	23
92.5°	25	24	24	23	22	22	21	20	19	17	16
95°	19	19	19	18	17	16	16	15	13	12	10
97.5°	15	14	14	13	12	12	12	10	9	8	6
100°	10	10	10	10	9	8	8	7	6	5	4
102.5°	7	7	7	6	6	6	5	5	4	3	2
105°	5	5	5	4	4	4	4	3	2	0	0
107.5°	3	3	3	2	2	1	1	0	0	0	0
110°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	0	0	0	0	0	0	0	0	0	0	0
115°	0	0	0	0	0	0	0	0	0	0	0
117.5°	0	0	0	0	0	0	0	0	0	0	0
120°	0	0	0	0	0	0	0	0	0	0	0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	380	380	380	380	380	380	380	380	380	380	380
2.5°	391	392	390	389	389	388	389	388	388	388	386
5°	397	398	397	395	395	393	391	389	384	384	377
7.5°	407	403	403	399	397	396	390	386	381	378	371
10°	412	407	406	400	398	395	391	386	377	373	366
12.5°	414	409	407	400	398	395	390	381	375	366	358
15°	415	409	407	399	395	392	387	374	370	359	349
17.5°	411	407	403	395	391	390	383	368	363	351	340
20°	406	401	398	388	384	381	374	362	354	341	330
22.5°	400	393	389	380	378	373	365	354	341	330	320
25°	395	386	379	372	368	363	354	346	332	319	307
27.5°	387	377	370	361	358	354	343	334	319	306	295
30°	379	367	358	351	347	341	331	323	307	294	283
32.5°	369	357	346	340	335	329	318	308	294	283	270
35°	356	346	334	327	322	315	305	295	280	269	256
37.5°	344	332	323	314	308	301	292	280	268	257	243
40°	331	319	309	299	294	289	279	267	256	243	229
42.5°	318	304	297	287	281	276	265	253	242	229	216
45°	302	290	282	273	267	262	248	239	227	215	202
47.5°	288	276	268	257	253	247	235	225	212	200	187
50°	271	261	253	242	238	232	220	210	198	184	172
52.5°	255	246	238	227	223	218	205	195	183	169	157
55°	238	230	222	211	207	203	189	179	168	154	141
57.5°	220	213	206	196	191	186	174	164	152	138	125
60°	204	197	189	180	175	170	159	149	137	123	110
62.5°	186	180	173	163	159	154	143	133	121	108	96
65°	169	163	156	147	143	138	127	117	106	93	81
67.5°	152	146	139	131	127	122	111	102	91	79	67
70°	135	129	123	115	110	106	96	87	76	65	53
72.5°	119	112	106	98	94	90	80	72	63	52	41
75°	102	96	90	82	79	74	65	57	48	39	29
77.5°	86	81	74	67	64	59	51	44	36	28	20
80°	70	66	60	53	50	46	38	31	25	18	12
82.5°	55	52	46	41	37	34	27	22	16	10	6
85°	41	39	34	29	26	23	17	12	8	5	2
87.5°	30	28	24	20	17	14	10	7	4	1	1
90°	21	19	15	12	10	8	5	3	1	0	0
92.5°	14	11	9	6	5	4	2	1	0	0	0
95°	8	6	5	3	2	2	0	0	0	0	0
97.5°	5	4	3	1	0	0	0	0	0	0	0
100°	3	2	0	0	0	0	0	0	0	0	0
102.5°	0	0	0	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0	0	0	0
107.5°	0	0	0	0	0	0	0	0	0	0	0
110°	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°
112.5°	0	0	0	0	0	0	0	0	0	0	0
115°	0	0	0	0	0	0	0	0	0	0	0
117.5°	0	0	0	0	0	0	0	0	0	0	0
120°	0	0	0	0	0	0	0	0	0	0	0
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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CATALOG NUMBER: FMB-N-2-LD4-1DN/LO-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	380	380	380	380	380	380	380	380	380	380	380
2.5°	380	378	373	374	371	368	367	367	361	360	361
5°	372	367	365	362	360	355	353	352	344	342	341
7.5°	365	360	354	352	348	344	338	335	331	328	325
10°	358	350	344	340	336	333	327	322	317	312	308
12.5°	350	340	334	331	327	320	313	309	303	299	294
15°	341	331	323	320	316	307	300	295	289	282	278
17.5°	331	320	310	306	302	295	289	280	273	267	263
20°	319	309	298	295	289	281	274	267	258	250	246
22.5°	307	297	287	281	277	267	259	250	241	231	225
25°	297	285	275	269	264	254	246	236	224	214	206
27.5°	284	273	261	256	250	239	229	218	205	195	186
30°	271	258	247	243	235	224	212	201	188	176	166
32.5°	258	245	234	229	222	209	197	184	171	159	146
35°	244	232	220	213	208	195	181	168	153	140	126
37.5°	230	219	206	200	193	180	165	150	136	122	108
40°	216	206	192	186	179	164	149	134	118	104	92
42.5°	202	191	178	170	164	148	133	118	102	89	78
45°	188	176	162	156	150	134	118	103	87	76	65
47.5°	174	161	149	142	134	120	104	88	75	65	55
50°	158	146	134	126	119	105	90	75	63	54	46
52.5°	143	131	119	111	104	91	76	63	52	44	38
55°	128	116	104	97	90	77	64	52	42	36	30
57.5°	113	101	89	83	77	64	52	41	33	28	23
60°	98	87	75	68	63	52	41	32	25	21	18
62.5°	83	72	62	56	51	41	31	24	18	15	13
65°	69	59	49	44	39	30	22	17	13	10	9
67.5°	55	46	37	33	29	21	15	11	9	7	6
70°	43	34	27	23	20	14	10	7	6	5	4
72.5°	31	24	17	15	12	8	6	4	4	3	2
75°	21	15	10	8	7	4	3	3	1	0	0
77.5°	13	9	5	4	3	3	1	0	0	0	0
80°	7	4	3	2	2	0	0	0	0	0	0
82.5°	3	2	1	0	0	0	0	0	0	0	0
85°	1	0	0	0	0	0	0	0	0	0	0
87.5°	0	0	0	0	0	0	0	0	0	0	0
90°	0	0	0	0	0	0	0	0	0	0	0
92.5°	0	0	0	0	0	0	0	0	0	0	0
95°	0	0	0	0	0	0	0	0	0	0	0
97.5°	0	0	0	0	0	0	0	0	0	0	0
100°	0	0	0	0	0	0	0	0	0	0	0
102.5°	0	0	0	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0	0	0	0
107.5°	0	0	0	0	0	0	0	0	0	0	0
110°	0	0	0	0	0	0	0	0	0	0	0



TEST NUMBER: P27172

CATALOG NUMBER: FMB-N-2-LD4-1DN/LO-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	0	0	0	0	0	0	0	0	0	0	0
115°	0	0	0	0	0	0	0	0	0	0	0
117.5°	0	0	0	0	0	0	0	0	0	0	0
120°	0	0	0	0	0	0	0	0	0	0	0
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



TEST NUMBER: P27172

CATALOG NUMBER: FMB-N-2-LD4-1DN/LO-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	380	380	380	380	380	380	380	380
2.5°	356	357	357	355	354	354	354	353
5°	339	338	338	337	336	335	337	335
7.5°	322	322	321	319	319	317	318	317
10°	308	304	303	301	301	300	298	301
12.5°	292	287	285	286	283	283	280	281
15°	275	272	270	269	268	265	264	263
17.5°	257	254	251	250	246	246	243	242
20°	238	232	232	228	226	222	222	219
22.5°	218	213	210	206	203	200	199	195
25°	199	192	188	184	179	176	174	172
27.5°	178	170	166	162	157	150	148	147
30°	157	148	143	138	131	126	123	122
32.5°	136	125	120	116	109	105	102	101
35°	115	104	100	96	91	87	84	84
37.5°	96	88	84	81	76	73	71	70
40°	81	74	71	68	65	63	60	60
42.5°	69	63	60	58	55	53	51	53
45°	58	53	51	49	47	46	45	45
47.5°	50	45	43	42	40	39	38	38
50°	41	37	36	35	33	32	32	31
52.5°	34	31	29	28	27	26	25	25
55°	27	24	23	23	21	21	20	20
57.5°	21	19	18	17	16	16	15	15
60°	16	14	13	13	12	11	11	11
62.5°	11	10	9	9	8	8	8	8
65°	8	7	7	6	6	6	6	6
67.5°	5	5	5	5	4	4	4	4
70°	4	3	3	2	1	0	0	0
72.5°	0	0	0	0	0	0	0	0
75°	0	0	0	0	0	0	0	0
77.5°	0	0	0	0	0	0	0	0
80°	0	0	0	0	0	0	0	0
82.5°	0	0	0	0	0	0	0	0
85°	0	0	0	0	0	0	0	0
87.5°	0	0	0	0	0	0	0	0
90°	0	0	0	0	0	0	0	0
92.5°	0	0	0	0	0	0	0	0
95°	0	0	0	0	0	0	0	0
97.5°	0	0	0	0	0	0	0	0
100°	0	0	0	0	0	0	0	0
102.5°	0	0	0	0	0	0	0	0
105°	0	0	0	0	0	0	0	0
107.5°	0	0	0	0	0	0	0	0
110°	0	0	0	0	0	0	0	0



TEST NUMBER: P27172

CATALOG NUMBER: FMB-N-2-LD4-1DN/LO-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

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

(END OF REPORT)