

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: P27157

Luminaire Tested: **FMB-N-2-LD4-1UP/HI-40-UNV-80/86**

Test Date: 12/01/15

Test Information

Test Method: LM-79-08
Report Number: P27157
Test Lab: INNOVATION CENTER-P2
Test Date: 12/01/15
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMB-N-2-LD4-1UP/HI-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: 1478.6 lumens
Efficiency: N/A
Efficacy: 65.7 lumens/watt
Spacing Criteria (0/90/45): - / - / -
Luminous Opening: Rectangular w/ Sides (W: 1.75' x L: 0.29' x H: 0.04')
CIE Type: Indirect

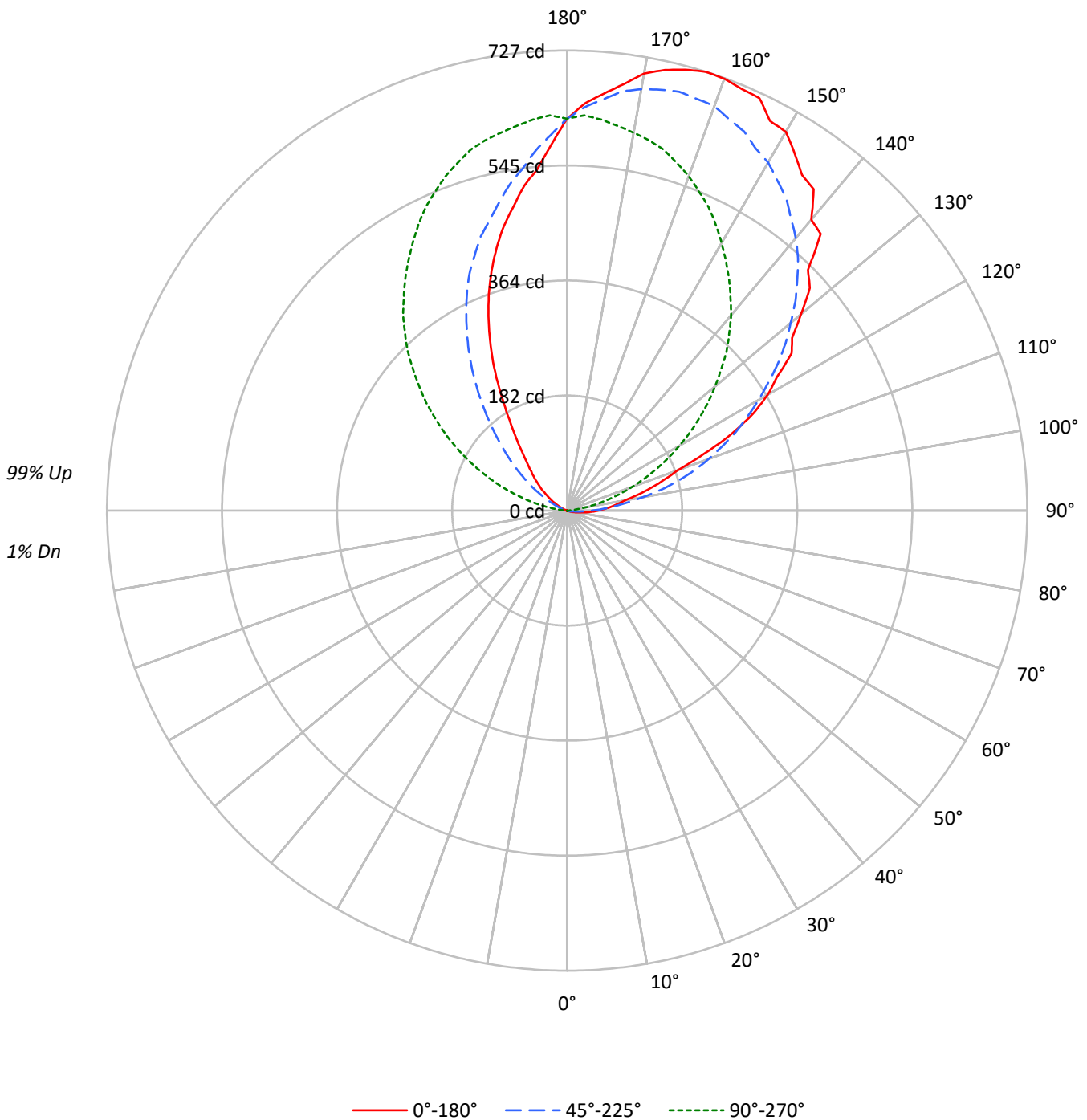
Input Watts (W): 22.5
Input Voltage (V): 120.14
Input Current (Ain): 0.18836
Voltage Rise (V): NR
Power Factor: 0.998
Total Harmonic Distortion (THDi): 5.82%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: 24 HR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P27157

CATALOG NUMBER: FMB-N-2-LD4-1UP/HI-40-UNV-80/86

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	95	95	95	95	82	82	82	82	56	56	56	33	33	33	11	11	11	1
1	87	82	79	75	74	71	68	65	48	47	45	28	27	26	9	9	9	0
2	79	72	66	61	67	62	57	53	42	39	37	24	23	22	8	8	7	0
3	72	63	56	51	61	54	48	44	37	34	31	22	20	18	7	6	6	0
4	65	55	48	43	56	48	42	37	33	29	26	19	17	15	6	6	5	0
5	60	49	42	36	51	42	36	31	29	25	22	17	15	13	6	5	4	0
6	55	44	36	31	47	38	31	27	26	22	19	15	13	11	5	4	4	0
7	50	39	32	27	43	34	28	23	23	19	16	14	11	10	4	4	3	0
8	46	35	28	23	40	30	24	20	21	17	14	12	10	9	4	3	3	0
9	43	32	25	20	37	27	22	18	19	15	13	11	9	8	4	3	2	0
10	40	29	22	18	34	25	19	16	17	14	11	10	8	7	3	3	2	0

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	0	0	0
5°	0	0	0
10°	0	0	0
15°	0	0	0
20°	0	0	0
25°	0	0	0
30°	0	0	0
35°	0	0	0
40°	0	0	0
45°	0	0	0
50°	0	0	0
55°	0	0	0
60°	0	0	0
65°	0	0	0
70°	0	58	0
75°	425	75	53
80°	1141	107	67
85°	2849	190	92



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	0.0	0.0
10°-20°	0.0	0.0
20°-30°	0.0	0.0
30°-40°	0.0	0.0
40°-50°	0.0	0.0
50°-60°	0.0	0.0
60°-70°	0.1	0.0
70°-80°	2.4	0.2
80°-90°	10.1	0.7
90°-100°	33.4	2.3
100°-110°	81.9	5.5
110°-120°	153.7	10.4
120°-130°	216.2	14.6
130°-140°	256.8	17.4
140°-150°	265.7	18.0
150°-160°	236.8	16.0
160°-170°	163.5	11.1
170°-180°	58.1	3.9
0°-30°	0.0	0.0
0°-40°	0.0	0.0
0°-60°	0.0	0.0
0°-90°	12.6	0.9
90°-120°	269.0	18.2
90°-150°	1007.7	68.2
90°-180°	1466.0	99.1
0°-180°	1478.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	0	0	0	0	0	
5°	0	0	0	0	0	0
15°	0	0	0	0	0	0
25°	0	0	0	0	0	0
35°	0	0	0	0	0	0
45°	0	0	0	0	0	0
55°	0	0	0	0	0	0
65°	0	0	0	0	0	0
75°	8	1	1	1	1	9
85°	31	17	1	1	1	22
90°	49	39	1	1	1	27
95°	70	73	8	1	1	62
105°	136	181	66	1	0	145
115°	287	294	156	22	10	279
125°	433	407	255	72	34	380
135°	538	514	356	148	73	423
145°	647	603	446	256	141	408
155°	719	661	529	375	286	328
165°	721	685	590	474	430	204
175°	661	652	620	571	541	64
180°	619	619	619	619	619	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	0	0	0	0	0	0	0	0	0	0	0
2.5°	0	0	0	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0	0	0	0
7.5°	0	0	0	0	0	0	0	0	0	0	0
10°	0	0	0	0	0	0	0	0	0	0	0
12.5°	0	0	0	0	0	0	0	0	0	0	0
15°	0	0	0	0	0	0	0	0	0	0	0
17.5°	0	0	0	0	0	0	0	0	0	0	0
20°	0	0	0	0	0	0	0	0	0	0	0
22.5°	0	0	0	0	0	0	0	0	0	0	0
25°	0	0	0	0	0	0	0	0	0	0	0
27.5°	0	0	0	0	0	0	0	0	0	0	0
30°	0	0	0	0	0	0	0	0	0	0	0
32.5°	0	0	0	0	0	0	0	0	0	0	0
35°	0	0	0	0	0	0	0	0	0	0	0
37.5°	0	0	0	0	0	0	0	0	0	0	0
40°	0	0	0	0	0	0	0	0	0	0	0
42.5°	0	0	0	0	0	0	0	0	0	0	0
45°	0	0	0	0	0	0	0	0	0	0	0
47.5°	0	0	0	0	0	0	0	0	0	0	0
50°	0	0	0	0	0	0	0	0	0	0	0
52.5°	0	0	0	0	0	0	0	0	0	0	0
55°	0	0	0	0	0	0	0	0	0	0	0
57.5°	0	0	0	0	0	0	0	0	0	0	0
60°	0	0	0	0	0	0	0	0	0	0	0
62.5°	0	0	0	0	0	0	0	0	0	0	0
65°	0	0	0	0	0	0	0	0	0	0	0
67.5°	0	0	0	0	0	0	0	0	0	0	0
70°	0	0	0	0	0	0	0	0	0	0	0
72.5°	6	6	6	5	3	2	1	0	0	0	0
75°	8	9	8	8	7	7	7	6	5	1	1
77.5°	12	12	12	11	10	10	9	8	7	6	5
80°	17	17	16	16	15	14	13	12	10	8	7
82.5°	23	23	23	22	21	20	19	17	15	13	10
85°	31	31	31	30	28	27	26	25	22	19	17
87.5°	40	40	39	38	37	36	35	34	31	29	26
90°	49	50	49	48	47	46	45	44	42	41	39
92.5°	59	60	60	58	58	57	56	56	57	56	55
95°	70	70	70	69	69	69	69	71	74	74	73
97.5°	80	81	81	81	84	85	86	89	92	93	94
100°	93	94	96	98	102	104	105	108	113	116	121
102.5°	113	115	118	119	122	124	126	129	136	146	152
105°	136	138	140	141	145	146	148	156	171	180	181
107.5°	160	161	163	165	170	175	180	195	209	212	210
110°	185	188	193	200	214	220	226	236	242	242	238



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	234	240	248	252	258	264	270	271	275	270	265
115°	287	285	292	298	302	301	303	306	302	298	294
117.5°	331	332	331	329	335	338	336	334	331	327	321
120°	366	369	373	369	362	363	368	362	360	351	349
122.5°	393	392	394	400	399	393	389	393	386	384	377
125°	433	433	426	417	420	425	426	415	421	410	407
127.5°	448	454	459	460	450	445	444	455	442	443	435
130°	482	480	475	476	487	489	483	475	483	469	461
132.5°	520	524	526	517	506	507	510	518	507	502	489
135°	538	538	540	548	556	553	546	542	542	525	514
137.5°	593	593	589	578	572	574	578	573	562	554	540
140°	600	603	608	613	612	606	596	594	588	573	562
142.5°	640	638	631	622	619	624	626	617	604	595	581
145°	647	652	657	657	649	642	636	633	627	612	603
147.5°	669	669	663	658	660	665	666	650	641	632	618
150°	691	692	692	688	677	672	668	666	657	644	635
152.5°	694	694	692	692	692	692	688	675	668	659	645
155°	719	718	713	706	699	696	695	692	680	669	661
157.5°	721	720	719	719	716	711	704	695	690	681	669
160°	726	725	721	717	714	713	711	703	693	685	680
162.5°	727	726	723	719	713	710	707	703	698	691	682
165°	721	721	720	717	715	713	710	703	694	690	685
167.5°	713	712	710	707	704	703	702	698	692	686	681
170°	701	701	699	697	693	690	689	685	682	679	676
172.5°	679	679	678	679	678	677	677	675	672	671	668
175°	661	662	660	660	658	657	657	655	653	653	652
177.5°	644	644	643	642	642	641	641	639	638	639	638
180°	619	619	619	619	619	619	619	619	619	619	619



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	0	0	0	0	0	0	0	0	0	0	0
2.5°	0	0	0	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0	0	0	0
7.5°	0	0	0	0	0	0	0	0	0	0	0
10°	0	0	0	0	0	0	0	0	0	0	0
12.5°	0	0	0	0	0	0	0	0	0	0	0
15°	0	0	0	0	0	0	0	0	0	0	0
17.5°	0	0	0	0	0	0	0	0	0	0	0
20°	0	0	0	0	0	0	0	0	0	0	0
22.5°	0	0	0	0	0	0	0	0	0	0	0
25°	0	0	0	0	0	0	0	0	0	0	0
27.5°	0	0	0	0	0	0	0	0	0	0	0
30°	0	0	0	0	0	0	0	0	0	0	0
32.5°	0	0	0	0	0	0	0	0	0	0	0
35°	0	0	0	0	0	0	0	0	0	0	0
37.5°	0	0	0	0	0	0	0	0	0	0	0
40°	0	0	0	0	0	0	0	0	0	0	0
42.5°	0	0	0	0	0	0	0	0	0	0	0
45°	0	0	0	0	0	0	0	0	0	0	0
47.5°	0	0	0	0	0	0	0	0	0	0	0
50°	0	0	0	0	0	0	0	0	0	0	0
52.5°	0	0	0	0	0	0	0	0	0	0	0
55°	0	0	0	0	0	0	0	0	0	0	0
57.5°	0	0	0	0	0	0	0	0	0	0	0
60°	0	0	0	0	0	0	0	0	0	0	0
62.5°	0	0	0	0	0	0	0	0	0	0	0
65°	0	0	0	0	0	0	0	0	0	0	0
67.5°	0	0	0	0	0	0	0	0	0	0	0
70°	0	1	1	1	1	1	1	1	1	1	1
72.5°	0	1	1	1	1	1	1	1	1	1	1
75°	1	1	1	1	1	1	1	1	1	1	1
77.5°	1	1	1	1	1	1	1	1	1	1	1
80°	5	4	1	1	1	1	1	1	1	1	1
82.5°	8	6	4	3	1	1	1	1	1	1	1
85°	14	12	8	6	4	3	1	1	1	1	1
87.5°	24	20	16	12	9	7	4	2	1	1	1
90°	37	33	28	21	17	15	9	5	2	1	1
92.5°	52	49	43	34	29	26	18	12	7	2	1
95°	72	69	61	50	44	40	30	23	15	8	4
97.5°	95	92	81	68	61	56	46	37	28	17	10
100°	122	117	103	89	81	76	65	55	43	31	20
102.5°	149	140	126	111	104	99	86	75	62	47	33
105°	175	166	151	136	128	123	110	98	84	66	49
107.5°	202	190	177	162	154	149	135	122	107	87	67
110°	229	216	203	189	182	176	162	147	131	109	87



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
112.5°	255	244	231	215	209	202	188	172	154	132	109
115°	284	273	258	243	236	229	214	198	178	156	132
117.5°	311	301	286	271	264	257	240	225	203	180	156
120°	341	329	314	298	292	284	267	250	229	205	181
122.5°	368	356	341	325	318	310	294	275	253	230	206
125°	397	382	367	352	344	337	318	300	278	255	232
127.5°	422	409	392	377	368	361	342	325	304	281	257
130°	450	435	420	402	393	386	367	349	328	305	284
132.5°	472	458	443	426	418	409	391	373	353	330	308
135°	501	484	466	450	441	434	414	396	377	356	333
137.5°	522	507	489	471	463	456	437	421	400	379	356
140°	547	529	512	494	486	478	460	444	424	403	381
142.5°	567	551	533	516	507	499	482	466	446	424	402
145°	588	571	556	539	530	524	505	488	468	446	424
147.5°	606	591	576	558	550	544	527	510	490	467	445
150°	620	609	595	580	572	565	550	531	511	488	465
152.5°	637	624	611	597	591	584	569	553	531	509	486
155°	648	637	625	613	608	601	587	573	550	529	505
157.5°	661	649	637	626	621	615	602	587	568	545	523
160°	669	659	649	638	632	627	618	602	583	562	540
162.5°	675	667	657	646	642	638	628	613	597	576	556
165°	677	669	660	653	649	645	634	622	608	590	570
167.5°	675	669	663	656	652	648	638	629	616	599	583
170°	673	669	664	658	655	651	643	633	620	606	593
172.5°	664	660	656	654	652	650	645	639	630	613	602
175°	650	650	649	649	649	648	647	644	633	620	611
177.5°	637	636	637	636	638	641	639	639	634	625	618
180°	619	619	619	619	619	619	619	619	619	619	619



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	0	0	0	0	0	0	0	0	0	0	0
2.5°	0	0	0	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0	0	0	0
7.5°	0	0	0	0	0	0	0	0	0	0	0
10°	0	0	0	0	0	0	0	0	0	0	0
12.5°	0	0	0	0	0	0	0	0	0	0	0
15°	0	0	0	0	0	0	0	0	0	0	0
17.5°	0	0	0	0	0	0	0	0	0	0	0
20°	0	0	0	0	0	0	0	0	0	0	0
22.5°	0	0	0	0	0	0	0	0	0	0	0
25°	0	0	0	0	0	0	0	0	0	0	0
27.5°	0	0	0	0	0	0	0	0	0	0	0
30°	0	0	0	0	0	0	0	0	0	0	0
32.5°	0	0	0	0	0	0	0	0	0	0	0
35°	0	0	0	0	0	0	0	0	0	0	0
37.5°	0	0	0	0	0	0	0	0	0	0	0
40°	0	0	0	0	0	0	0	0	0	0	0
42.5°	0	0	0	0	0	0	0	0	0	0	0
45°	0	0	0	0	0	0	0	0	0	0	0
47.5°	0	0	0	0	0	0	0	0	0	0	0
50°	0	0	0	0	0	0	0	0	0	0	0
52.5°	0	0	0	0	0	0	0	0	0	0	0
55°	0	0	0	0	0	0	0	0	0	0	0
57.5°	0	0	0	0	0	0	0	0	0	0	0
60°	0	0	0	0	0	0	0	0	0	0	0
62.5°	0	0	0	0	0	0	0	0	0	0	0
65°	0	0	0	0	0	0	0	0	0	0	0
67.5°	0	0	0	0	0	0	0	0	0	0	0
70°	1	1	1	1	1	1	1	1	1	1	1
72.5°	1	1	1	1	1	1	1	1	1	1	1
75°	1	1	1	1	1	1	1	1	1	1	1
77.5°	1	1	1	1	1	1	1	1	1	1	1
80°	1	1	1	1	1	1	1	1	1	1	1
82.5°	1	1	1	1	1	1	1	1	1	1	1
85°	1	1	1	1	1	1	1	1	1	1	1
87.5°	1	1	1	1	1	1	1	1	1	1	1
90°	1	1	1	1	1	1	1	1	1	1	1
92.5°	1	1	1	1	1	1	1	1	1	1	0
95°	2	1	1	1	1	1	1	1	1	1	1
97.5°	6	3	1	1	1	1	0	0	0	0	0
100°	13	8	5	4	3	1	1	1	1	1	1
102.5°	23	15	10	8	6	4	1	1	1	1	1
105°	36	26	18	15	12	8	6	4	1	1	1
107.5°	53	40	30	25	22	15	10	8	6	5	1
110°	72	57	45	39	34	25	17	12	10	8	7



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CATALOG NUMBER: FMB-N-2-LD4-1UP/HI-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
112.5°	92	76	62	55	50	37	27	20	15	12	11
115°	115	97	82	74	67	52	39	29	22	18	15
117.5°	138	120	104	95	87	70	54	41	31	26	22
120°	163	145	127	117	108	89	71	55	43	35	30
122.5°	188	170	151	140	130	109	89	71	56	46	40
125°	214	195	176	164	154	130	109	89	72	58	50
127.5°	239	219	201	189	177	153	130	108	89	72	62
130°	265	245	225	213	202	176	152	128	107	89	76
132.5°	290	269	249	238	227	200	176	150	127	107	91
135°	314	294	274	262	251	224	200	173	148	127	110
137.5°	338	317	297	286	276	249	225	198	173	148	130
140°	361	340	320	309	300	275	251	224	199	174	153
142.5°	383	363	343	332	323	299	277	251	227	202	181
145°	405	383	364	355	346	326	304	278	256	232	212
147.5°	426	406	387	377	369	350	330	307	286	263	244
150°	447	426	409	400	391	374	358	335	315	295	277
152.5°	469	448	431	422	414	398	383	364	345	325	310
155°	489	468	451	443	435	421	407	390	375	357	342
157.5°	507	486	471	465	456	441	431	415	404	390	375
160°	525	505	490	484	477	462	451	439	428	418	407
162.5°	541	525	509	503	498	486	474	462	454	444	434
165°	557	540	526	521	515	506	496	483	474	468	462
167.5°	569	556	544	539	534	524	517	508	498	490	484
170°	582	570	561	557	553	544	537	529	523	517	512
172.5°	593	583	577	574	572	565	559	551	544	539	535
175°	604	596	591	590	588	585	581	576	571	566	563
177.5°	612	607	604	604	603	602	602	598	594	592	590
180°	619	619	619	619	619	619	619	619	619	619	619



TEST NUMBER: P27157

CATALOG NUMBER: FMB-N-2-LD4-1UP/HI-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	0	0	0	0	0	0	0	0
2.5°	0	0	0	0	0	0	0	0
5°	0	0	0	0	0	0	0	0
7.5°	0	0	0	0	0	0	0	0
10°	0	0	0	0	0	0	0	0
12.5°	0	0	0	0	0	0	0	0
15°	0	0	0	0	0	0	0	0
17.5°	0	0	0	0	0	0	0	0
20°	0	0	0	0	0	0	0	0
22.5°	0	0	0	0	0	0	0	0
25°	0	0	0	0	0	0	0	0
27.5°	0	0	0	0	0	0	0	0
30°	0	0	0	0	0	0	0	0
32.5°	0	0	0	0	0	0	0	0
35°	0	0	0	0	0	0	0	0
37.5°	0	0	0	0	0	0	0	0
40°	0	0	0	0	0	0	0	0
42.5°	0	0	0	0	0	0	0	0
45°	0	0	0	0	0	0	0	0
47.5°	0	0	0	0	0	0	0	0
50°	0	0	0	0	0	0	0	0
52.5°	0	0	0	0	0	0	0	0
55°	0	0	0	0	0	0	0	0
57.5°	0	0	0	0	0	0	0	0
60°	0	0	0	0	0	0	0	0
62.5°	0	0	0	0	0	0	0	0
65°	0	0	0	0	0	0	0	0
67.5°	0	0	0	0	0	0	0	0
70°	0	0	1	0	0	0	0	0
72.5°	1	0	1	0	0	0	0	0
75°	1	1	1	1	1	1	1	1
77.5°	1	1	1	1	1	1	1	1
80°	1	1	1	1	1	1	1	1
82.5°	1	1	1	0	0	0	1	0
85°	1	1	1	1	1	1	1	1
87.5°	1	1	1	1	1	0	1	0
90°	1	1	1	1	1	1	1	1
92.5°	1	1	1	1	1	0	1	1
95°	1	1	1	1	1	1	1	1
97.5°	0	0	0	0	0	0	0	1
100°	1	1	1	1	1	1	1	1
102.5°	1	1	1	1	1	1	1	1
105°	1	1	0	1	0	1	0	0
107.5°	1	1	1	1	1	1	1	1
110°	6	4	3	1	1	1	1	1



TEST NUMBER: P27157

CATALOG NUMBER: FMB-N-2-LD4-1UP/HI-40-UNV-80/86

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
112.5°	10	9	9	8	7	7	7	7
115°	14	12	12	11	11	10	10	10
117.5°	19	17	17	16	15	14	14	14
120°	27	24	23	22	21	19	19	19
122.5°	35	32	31	29	28	26	26	26
125°	45	41	40	38	36	34	34	34
127.5°	56	51	49	47	45	43	43	42
130°	68	62	60	58	55	53	52	52
132.5°	81	74	71	69	65	63	62	62
135°	96	86	84	81	77	74	74	73
137.5°	114	103	99	94	90	86	85	84
140°	136	123	118	112	105	101	99	98
142.5°	161	145	141	134	127	120	118	117
145°	191	173	168	160	150	144	142	141
147.5°	226	206	201	192	180	174	171	169
150°	260	243	239	230	219	210	207	205
152.5°	294	279	273	267	257	250	248	246
155°	328	314	309	304	295	290	287	286
157.5°	362	349	345	339	332	327	325	324
160°	396	384	380	375	368	365	363	362
162.5°	426	417	414	410	404	401	398	397
165°	453	444	442	438	433	431	430	430
167.5°	479	472	470	468	463	462	461	461
170°	506	499	497	493	489	488	488	488
172.5°	532	527	525	523	520	518	517	518
175°	559	553	551	548	544	542	541	541
177.5°	588	584	582	582	578	577	578	578
180°	619	619	619	619	619	619	619	619

(END OF REPORT)