

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: 168P166

Luminaire Tested: **MPWA-2/232-WHT-NRL**

Issue Date: 3/3/2020

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.

Test Information

Test Method: LM-79-08
Report Number: 168P166
Test Lab:
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: MPWA-2/232-WHT-NRL
Description: Medical Patient Wall Bracket, Architectural style
angled and rounded front, upper and lower compartments.
Light Source: Four - FO32/35K - 2800 Lumens ea. - 32 Watts ea.
Ballast/Driver: Two - Advance REL-2P32-SC

Luminaire Equipment:	<u>Sample No.</u>	<u>Condition</u>	<u>Description</u>
	AS-5443-1	Good	WHITE TWIN R-EVOLVE FLOOD
	AS-5443-2	Good	REFLECTOR
	AS-5443-3	Good	DRIVER
	AS-5443-4	Good	UPPER MODULE
	AS-5443-5	Good	LENS
	AS-5443-6	Good	DRIVER 2
	AS-5443-7	Good	TRIM RING

Summary

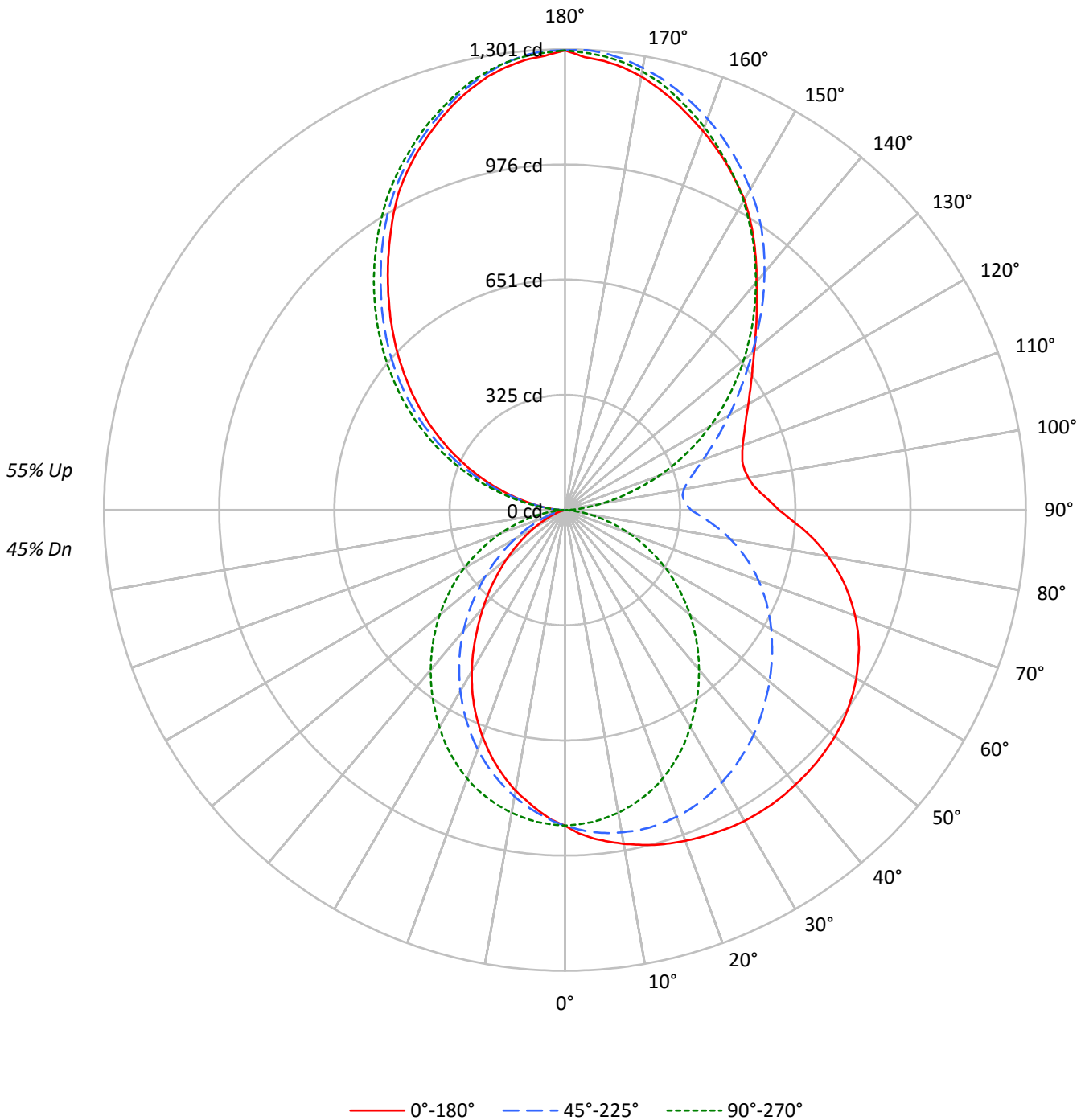
Lumens per Lamp: 2800 (4 lamps)
Luminaire Lumens: 6374.4 lumens
Efficiency: 56.9%
Efficacy: 59.0 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.19 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 3.83' x L: 0.43' x H: 0.25')
CIE Type: General Diffuse

Input Watts (W): 108
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					70					50					30				
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																				
0	60	60	60	60	55	55	55	55	46	46	46	37	37	37	29	29	29	26		
1	54	51	49	47	49	47	45	43	39	37	36	32	30	29	25	24	23	20		
2	49	45	41	38	45	41	37	35	34	31	29	27	26	24	21	20	19	16		
3	45	39	34	31	41	36	32	29	30	27	24	24	22	20	19	17	16	13		
4	41	34	30	26	37	31	27	24	26	23	20	21	19	17	17	15	14	11		
5	37	30	26	22	34	28	24	21	23	20	18	19	16	15	15	13	12	10		
6	34	27	22	19	31	25	21	18	21	18	15	17	15	13	13	12	10	8		
7	32	25	20	17	29	23	18	16	19	16	13	15	13	11	12	10	9	7		
8	29	22	18	15	27	20	16	14	17	14	12	14	12	10	11	9	8	7		
9	27	20	16	13	25	19	15	12	16	13	10	13	11	9	10	9	7	6		
10	25	19	14	12	23	17	13	11	14	11	9	12	10	8	10	8	7	5		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5823	5823	5823
5°	5812	5767	5319
10°	5761	5695	4840
15°	5731	5599	4367
20°	5706	5483	3904
25°	5702	5326	3444
30°	5729	5149	2966
35°	5761	4960	2489
40°	5803	4764	2053
45°	5880	4564	1654
50°	5976	4349	1279
55°	6076	4117	940
60°	6187	3852	645
65°	6305	3527	392
70°	6416	3127	206
75°	6525	2619	80
80°	6613	1978	18
85°	6680	1160	10



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ZONAL LUMENS:

CANDELA DISTRIBUTION:

Zone	Lumens	% Fixture	% Lamp		0°	45°	90°	135°	180°	Flux
0°-10°	84.2	1.3	0.8	0°	891	891	891	891	891	
10°-20°	239.9	3.8	2.1	5°	931	913	884	860	852	90
20°-30°	360.3	5.7	3.2	15°	979	928	842	774	746	278
30°-40°	430.6	6.8	3.8	25°	1005	908	761	657	607	465
40°-50°	449.5	7.1	4.0	35°	1016	860	650	519	439	637
50°-60°	424.7	6.7	3.8	45°	1006	792	526	369	283	778
60°-70°	367.6	5.8	3.3	55°	976	714	395	226	151	874
70°-80°	293.4	4.6	2.6	65°	916	629	260	107	57	907
80°-90°	218.4	3.4	2.0	75°	819	531	129	29	10	863
90°-100°	195.6	3.1	1.7	85°	681	414	27	4	1	571
100°-110°	280.6	4.4	2.5	90°	604	356	4	2	0	333
110°-120°	405.7	6.4	3.6	95°	555	336	37	31	33	448
120°-130°	511.1	8.0	4.6	105°	519	370	188	165	152	554
130°-140°	573.7	9.0	5.1	115°	561	471	378	349	319	558
140°-150°	576.8	9.0	5.1	125°	643	608	567	538	499	577
150°-160°	499.4	7.8	4.5	135°	765	782	750	719	681	592
160°-170°	340.8	5.3	3.0	145°	930	968	926	900	869	582
170°-180°	122.0	1.9	1.1	155°	1079	1116	1083	1069	1054	497
0°-30°	684.4	10.7	6.1	165°	1195	1227	1210	1202	1192	337
0°-40°	1115.0	17.5	10.0	175°	1273	1295	1286	1289	1276	121
0°-60°	1989.2	31.2	17.8	180°	1298	1298	1298	1298	1298	
0°-90°	2868.7	45.0	25.6							
90°-120°	881.9	13.8	7.9							
90°-150°	2543.5	39.9	22.7							
90°-180°	3506.0	55.0	31.3							
0°-180°	6374.4	100.0	56.9							



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	891	891	891	891	891	891	891	891	891
2.5°	914	906	903	896	888	882	877	871	875
5°	931	921	913	900	884	870	860	851	852
7.5°	944	933	920	900	877	857	842	831	828
10°	957	943	924	898	868	841	821	804	804
12.5°	968	952	927	893	856	824	798	779	776
15°	979	959	928	885	842	804	774	750	746
17.5°	987	965	925	875	826	782	747	720	714
20°	994	968	922	863	807	758	719	687	680
22.5°	1000	970	916	848	785	732	689	654	644
25°	1005	972	908	831	761	704	657	618	607
27.5°	1010	972	898	811	736	674	624	581	567
30°	1014	970	887	789	708	643	590	543	525
32.5°	1015	968	875	767	679	611	555	503	483
35°	1016	964	860	743	650	578	519	462	439
37.5°	1015	958	845	719	620	544	483	421	398
40°	1012	952	829	694	589	510	446	381	358
42.5°	1010	944	811	669	558	475	407	343	320
45°	1006	936	792	643	526	439	369	306	283
47.5°	1001	926	773	617	494	403	331	270	247
50°	995	916	754	590	461	368	295	236	213
52.5°	987	905	734	563	428	331	260	203	181
55°	976	892	714	536	395	295	226	172	151
57.5°	964	878	693	509	362	259	193	143	124
60°	950	864	673	481	328	223	162	116	99
62.5°	933	848	651	453	294	188	133	92	77
65°	916	831	629	425	260	156	107	71	57
67.5°	895	811	606	397	227	125	82	52	41
70°	872	788	582	368	193	97	61	36	28
72.5°	846	764	557	338	161	73	43	24	18
75°	819	737	531	309	129	52	29	15	10
77.5°	788	708	503	279	99	35	18	8	5
80°	755	677	475	249	72	22	10	4	2
82.5°	720	644	445	220	47	13	6	2	2
85°	681	610	414	189	27	8	4	2	1
87.5°	640	573	383	160	12	6	4	2	1
90°	604	542	356	133	4	3	2	1	0
92.5°	579	525	344	123	13	14	12	10	15
95°	555	507	336	126	37	34	31	30	33
97.5°	536	495	335	138	68	63	56	52	55
100°	526	490	341	158	103	97	88	80	83
102.5°	520	490	353	186	144	137	124	113	116
105°	519	495	370	220	188	181	165	150	152
107.5°	525	504	390	259	234	227	209	191	191
110°	534	517	415	301	282	275	255	233	233



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	547	532	441	346	330	323	301	276	276
115°	561	550	471	393	378	372	349	321	319
117.5°	578	569	501	441	426	420	397	365	364
120°	598	589	535	489	473	467	445	410	408
122.5°	619	613	571	537	520	514	492	454	454
125°	643	639	608	584	567	560	538	499	499
127.5°	668	668	648	632	613	606	583	543	544
130°	698	701	690	680	659	652	629	588	589
132.5°	730	738	735	726	704	697	674	634	635
135°	765	777	782	772	750	742	719	679	681
137.5°	802	820	830	816	794	786	764	725	727
140°	842	866	877	860	839	828	808	772	773
142.5°	886	913	923	903	882	871	854	817	821
145°	930	961	968	946	926	915	900	863	869
147.5°	973	1005	1009	989	967	960	946	911	917
150°	1013	1044	1047	1030	1009	1002	990	961	967
152.5°	1046	1080	1082	1068	1047	1042	1031	1007	1014
155°	1079	1115	1116	1103	1083	1079	1069	1048	1054
157.5°	1110	1146	1148	1135	1117	1114	1105	1087	1092
160°	1139	1176	1176	1166	1151	1148	1139	1123	1126
162.5°	1167	1203	1203	1194	1181	1179	1172	1157	1160
165°	1195	1227	1227	1220	1210	1208	1202	1190	1192
167.5°	1220	1249	1250	1244	1237	1235	1230	1219	1219
170°	1243	1268	1268	1265	1258	1259	1254	1246	1244
172.5°	1261	1283	1284	1281	1275	1278	1274	1266	1262
175°	1273	1293	1295	1293	1286	1290	1289	1283	1276
177.5°	1280	1299	1301	1298	1293	1298	1298	1292	1284
180°	1298	1298	1298	1298	1298	1298	1298	1298	1298

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