

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: P22199

Luminaire Tested: **SAMA-FM1-B02-LED-E1-5MQ-CTG125-WH**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P22199
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: SAMA-FM1-B02-LED-E1-5MQ-CTG125-WH
Description: FM1 LED TYPE 5
Light Source: (2) 4000K SMT LED BARS
LEDLBBTY5S65
Ballast/Driver: (1) MAGTECH ELECTRONIC DRIVER
LP109024BB1702BAR

Summary

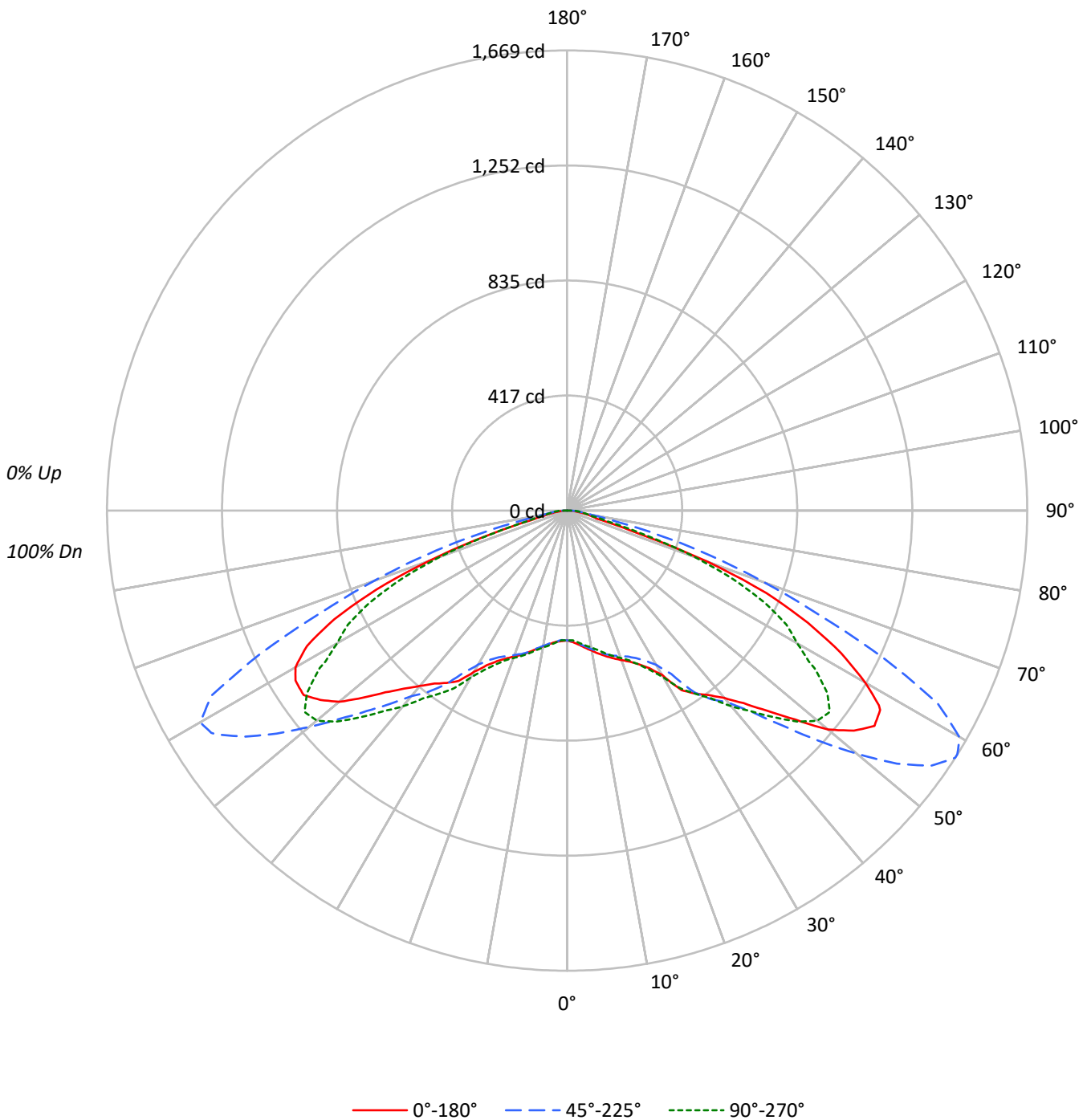
Lumens per Lamp: N/A
Luminaire Lumens: 4270.0 lumens
Efficiency: N/A
Efficacy: 74.3 lumens/watt
Spacing Criteria (0/90/45): 2.87 / 2.76 / 2.84
Luminous Opening: Rectangular (W 0.35' x L: 0.92' x H: 0')
CIE Type: Direct

Input Watts (W): 57.5
Input Voltage (V): NR
Input Current (Ain): 0.48426
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: 13 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	102	102	102	100
1	107	102	97	93	105	100	95	91	95	92	88	91	88	86	88	85	83	81
2	95	86	78	71	93	84	77	70	80	74	69	77	72	67	74	69	66	63
3	85	73	63	56	82	71	62	55	68	60	54	65	58	53	62	57	52	50
4	76	62	52	44	74	61	51	44	58	50	43	56	48	42	53	47	42	39
5	69	54	43	36	66	53	43	35	50	42	35	48	40	34	46	39	34	32
6	62	47	37	29	60	46	36	29	44	35	29	42	34	28	40	34	28	26
7	57	42	32	24	55	41	31	24	39	30	24	37	30	24	36	29	24	21
8	52	37	27	21	51	36	27	21	35	27	21	34	26	20	32	25	20	18
9	48	33	24	18	47	33	24	18	31	23	18	30	23	18	29	22	17	15
10	45	30	22	16	44	30	21	16	29	21	15	28	20	15	27	20	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	15616	15616	15616
5°	16242	16009	15909
10°	17372	16968	16833
15°	18776	18398	18226
20°	20358	20076	19864
25°	22498	22535	22059
30°	26340	26722	25842
35°	32785	32825	30882
40°	38390	40078	35923
45°	48108	49702	43700
50°	63702	61123	55655
55°	78671	66533	67457
60°	82821	63923	75461
65°	75627	62055	73117
70°	52347	47597	51669
75°	14091	19471	17422
80°	12029	13938	11456
85°	11032	16738	9130



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.7	1.1
10°-20°	152.6	3.6
20°-30°	281.8	6.6
30°-40°	495.3	11.6
40°-50°	809.4	19.0
50°-60°	1168.7	27.4
60°-70°	985.7	23.1
70°-80°	285.7	6.7
80°-90°	44.1	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°	481.2	11.3
0°-40°	976.4	22.9
0°-60°	2954.6	69.2
0°-90°	4270.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4270.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	471	471	471	471	471	
5°	488	484	481	477	478	47
15°	547	539	536	530	531	156
25°	615	590	616	587	603	289
35°	810	806	811	770	763	507
45°	1026	1100	1060	1028	932	808
55°	1361	1613	1151	1429	1167	1181
65°	964	1266	791	1226	932	929
75°	110	348	152	341	136	193
85°	29	44	44	40	24	33
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	471	471	471	471	471	471	471	471	471	471	471
2.5°	478	479	478	477	477	476	475	475	474	473	472
5°	488	489	488	488	486	486	485	485	484	484	483
7.5°	502	503	502	502	500	499	498	498	497	496	495
10°	516	517	517	516	515	514	512	512	511	510	508
12.5°	532	532	532	531	530	529	527	527	526	524	523
15°	547	548	547	546	545	544	542	541	541	539	538
17.5°	562	561	561	560	558	557	555	553	552	552	550
20°	577	576	575	574	571	569	566	563	562	561	561
22.5°	593	592	591	590	586	583	579	576	574	573	574
25°	615	614	613	611	606	602	597	593	590	590	590
27.5°	644	642	640	638	632	627	621	617	612	613	612
30°	688	683	681	677	668	660	652	647	643	646	647
32.5°	772	768	765	760	749	739	726	715	705	703	703
35°	810	808	810	809	808	810	811	813	811	806	800
37.5°	843	840	841	842	841	843	846	852	857	863	861
40°	887	886	887	884	886	887	891	897	902	908	907
42.5°	947	945	945	943	944	949	957	967	973	988	990
45°	1026	1021	1022	1021	1026	1033	1047	1065	1082	1100	1099
47.5°	1122	1117	1121	1125	1139	1154	1172	1194	1212	1234	1228
50°	1235	1232	1237	1243	1265	1288	1310	1339	1358	1372	1357
52.5°	1311	1309	1313	1326	1354	1389	1427	1472	1497	1508	1484
55°	1361	1362	1364	1374	1400	1440	1497	1559	1599	1613	1587
57.5°	1346	1353	1364	1385	1415	1463	1523	1593	1646	1669	1634
58°	1333	1341	1354	1378	1411	1461	1524	1594	1649	1669	1635
60°	1249	1262	1281	1314	1356	1422	1498	1574	1631	1643	1582
62.5°	1120	1133	1153	1188	1227	1307	1386	1475	1539	1515	1390
65°	964	978	997	1029	1066	1131	1209	1296	1339	1266	1153
67.5°	782	799	813	839	868	935	987	1045	1035	991	942
70°	540	562	577	602	652	688	727	736	743	758	735
72.5°	237	263	290	337	381	421	432	456	515	547	526
75°	110	114	121	136	159	181	200	247	311	348	329
77.5°	86	87	90	95	97	100	106	120	151	180	170
80°	63	65	69	72	73	74	76	80	86	91	89
82.5°	43	45	50	52	53	55	58	60	62	63	64
85°	29	31	34	36	38	40	41	43	43	44	45
87.5°	19	20	22	23	24	25	26	27	29	30	31
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	471	471	471	471	471	471	471	471	471	471	471
2.5°	472	472	472	472	471	472	472	471	471	470	470
5°	483	482	483	482	482	482	481	481	481	480	478
7.5°	496	495	495	494	493	494	493	493	492	491	490
10°	508	507	507	506	506	506	505	504	504	502	501
12.5°	522	521	520	520	520	520	520	518	518	516	516
15°	538	537	536	536	536	537	537	536	535	534	533
17.5°	550	550	550	551	551	552	553	553	553	551	550
20°	561	562	563	564	566	568	570	569	569	567	565
22.5°	574	576	578	580	582	586	587	588	588	586	582
25°	592	595	598	602	605	611	614	616	616	613	608
27.5°	617	623	629	634	638	645	648	651	650	647	642
30°	654	659	666	673	679	689	692	698	696	691	684
32.5°	713	722	731	741	748	753	761	765	763	757	749
35°	798	797	796	799	802	802	806	811	808	804	798
37.5°	859	855	852	851	851	851	853	859	858	852	845
40°	912	910	910	910	912	915	919	926	926	917	910
42.5°	994	990	989	987	986	986	983	987	985	977	970
45°	1101	1091	1081	1073	1066	1063	1058	1060	1055	1044	1038
47.5°	1212	1197	1178	1163	1151	1140	1134	1133	1126	1118	1112
50°	1334	1298	1265	1237	1221	1205	1195	1185	1178	1172	1171
52.5°	1438	1383	1335	1290	1257	1229	1213	1200	1192	1195	1200
55°	1519	1438	1354	1282	1232	1193	1172	1151	1152	1166	1192
57.5°	1543	1411	1293	1204	1145	1103	1080	1064	1062	1079	1111
58°	1535	1395	1274	1183	1123	1080	1056	1033	1040	1058	1091
60°	1449	1299	1176	1082	1030	999	980	964	968	979	1005
62.5°	1270	1143	1048	981	941	918	903	897	896	910	931
65°	1069	1000	938	879	839	815	800	791	793	807	834
67.5°	887	832	787	728	691	670	659	653	656	669	690
70°	690	636	601	556	525	505	496	491	493	508	537
72.5°	484	435	398	375	338	320	313	304	318	331	352
75°	290	253	221	206	179	164	158	152	160	165	185
77.5°	143	125	111	105	100	97	95	94	95	97	100
80°	84	81	79	78	77	76	75	73	75	76	77
82.5°	64	63	61	60	59	58	57	56	57	58	58
85°	46	46	46	46	45	45	45	44	45	45	44
87.5°	33	31	32	32	31	31	32	31	32	32	31
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	471	471	471	471	471	471	471	471	471	471	471
2.5°	470	470	470	470	470	470	471	471	472	473	473
5°	478	478	477	477	477	477	477	477	477	478	478
7.5°	489	489	488	487	487	486	486	486	486	487	487
10°	501	501	499	499	499	498	499	499	499	499	500
12.5°	515	514	514	513	513	513	515	514	514	514	514
15°	532	531	530	529	529	530	531	531	530	530	531
17.5°	548	546	545	544	544	545	546	546	546	547	548
20°	563	560	559	559	557	557	559	558	559	560	562
22.5°	579	576	574	573	571	571	572	572	573	575	578
25°	602	598	594	592	589	587	588	588	591	594	597
27.5°	634	630	625	620	614	610	610	609	612	616	622
30°	675	669	661	656	651	645	647	649	654	659	663
32.5°	737	728	718	710	700	695	698	701	704	714	722
35°	793	789	787	780	777	770	770	767	761	763	765
37.5°	841	837	836	833	830	829	824	814	805	800	798
40°	903	897	892	885	881	878	872	862	849	843	839
42.5°	965	960	958	954	951	950	945	930	913	902	891
45°	1031	1028	1030	1029	1029	1028	1024	1008	987	971	956
47.5°	1108	1109	1112	1113	1117	1117	1113	1094	1066	1044	1025
50°	1174	1182	1196	1209	1216	1220	1211	1187	1152	1128	1107
52.5°	1220	1243	1269	1298	1316	1328	1317	1287	1245	1213	1179
55°	1226	1270	1324	1374	1409	1429	1415	1386	1330	1275	1226
57.5°	1160	1235	1327	1419	1480	1510	1489	1438	1365	1290	1236
58°	1141	1219	1316	1421	1491	1522	1500	1445	1366	1290	1235
60°	1055	1137	1244	1381	1494	1536	1503	1441	1355	1271	1215
62.5°	968	1023	1112	1247	1373	1454	1445	1377	1297	1213	1152
65°	873	926	993	1071	1145	1226	1298	1258	1178	1089	1024
67.5°	733	787	846	889	929	963	1030	1059	989	904	841
70°	570	613	654	682	734	746	744	753	755	686	628
72.5°	379	412	438	478	527	538	523	476	470	457	407
75°	201	219	249	285	332	341	322	275	234	234	200
77.5°	102	109	124	143	171	173	161	134	115	104	100
80°	76	76	78	80	87	89	85	79	74	72	71
82.5°	58	58	60	60	61	59	59	58	55	52	50
85°	44	43	44	43	42	40	40	39	38	37	34
87.5°	30	30	31	31	29	27	26	25	23	22	20
90°	0	0	0	0	0	0	0	0	0	0	0



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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	471	471	471	471
2.5°	474	475	476	474
5°	479	480	480	478
7.5°	488	489	489	488
10°	500	500	501	500
12.5°	514	515	515	514
15°	531	532	532	531
17.5°	547	548	549	548
20°	562	565	565	563
22.5°	579	582	582	581
25°	600	603	604	603
27.5°	626	632	633	633
30°	667	674	676	675
32.5°	726	732	734	733
35°	765	766	765	763
37.5°	795	794	792	791
40°	835	834	832	830
42.5°	885	882	878	876
45°	944	938	933	932
47.5°	1014	1010	1004	1004
50°	1091	1084	1080	1079
52.5°	1156	1143	1132	1128
55°	1195	1179	1169	1167
57.5°	1202	1181	1169	1163
58°	1201	1180	1168	1162
60°	1183	1159	1144	1138
62.5°	1116	1089	1072	1064
65°	987	956	941	932
67.5°	805	773	761	750
70°	596	563	546	533
72.5°	373	344	329	319
75°	182	156	144	136
77.5°	95	92	88	85
80°	71	70	65	60
82.5°	49	49	43	39
85°	32	31	28	24
87.5°	19	18	16	14
90°	0	0	0	0

(END OF REPORT)