

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: 227P103

Luminaire Tested: **SM-228T5 (SM-2IN-ASY-4FT-REFL-B)**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-41-14  
Report Number: 227P103  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: SM-228T5 (SM-2IN-ASY-4FT-REFL-B)  
Description: SM Series Commercial Micro-Striplight with a  
solid asymmetrical reflector.  
Light Source: Two - F28T5/835 - 2900 Lumens ea. - 28 Watts ea.  
Ballast/Driver: Magnetek BT5-228/120 Electronic - L.O.B.F.= 97.5%

**Summary**

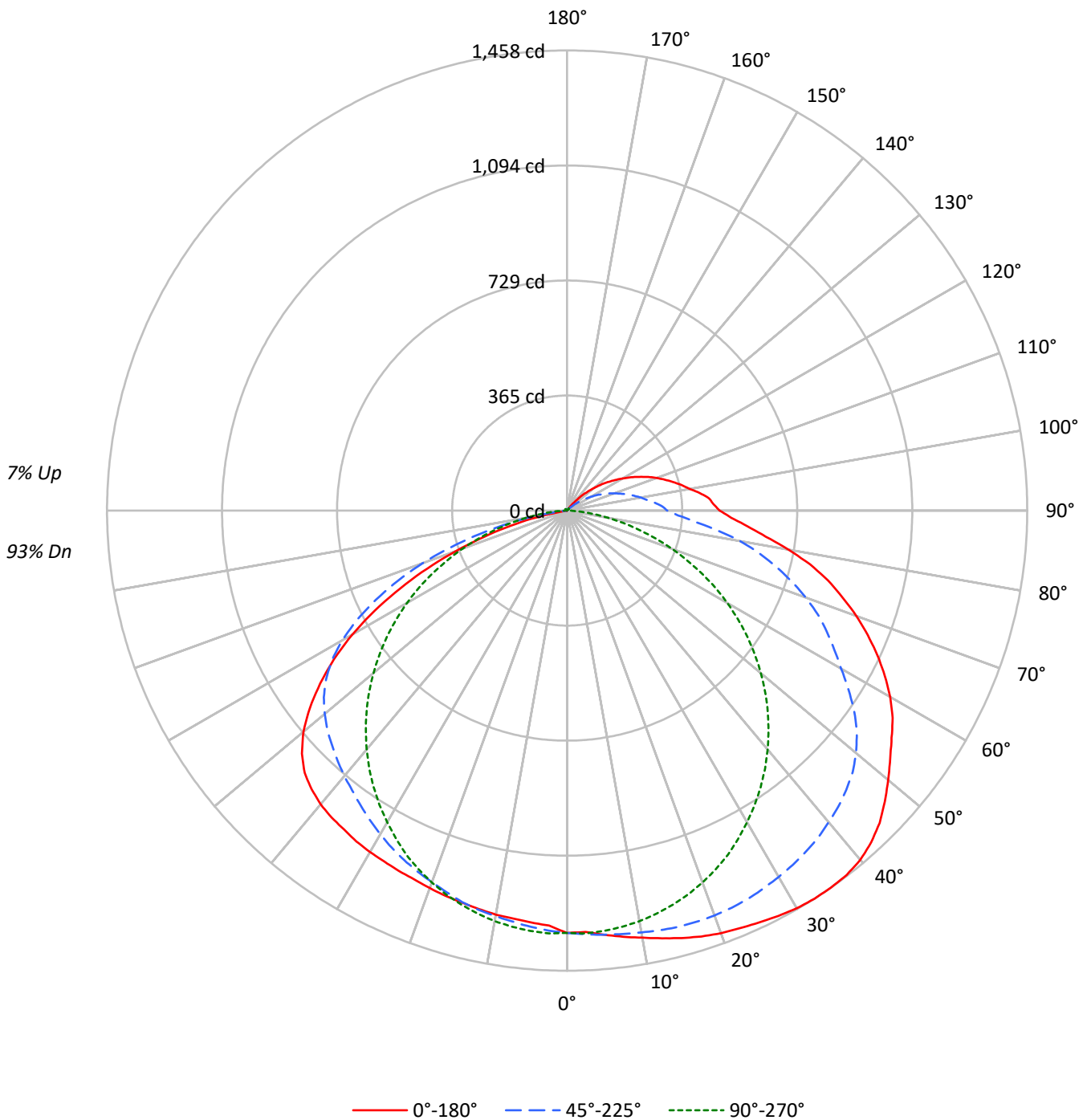
Lumens per Lamp: 2900 (2 lamps)  
Luminaire Lumens: 5365.9 lumens  
Efficiency: 92.5%  
Efficacy: 83.8 lumens/watt  
Spacing Criteria (0/90/45): 1.54 / 1.27 / 1.56  
Luminous Opening: Rectangular w/ Sides (W: 3.76' x L: 0.29' x H: 0.13')  
CIE Type: Direct

Input Watts (W): 64  
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				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	109	109	109	109	105	105	105	105	99	99	99	94	94	94	89	89	89	86
1	98	93	88	84	94	90	86	82	85	81	78	80	77	75	76	74	72	69
2	88	80	73	67	85	77	71	65	73	68	63	69	64	61	65	62	58	56
3	80	69	61	54	77	67	60	53	63	57	52	60	55	50	57	52	48	46
4	72	61	52	45	70	59	51	45	56	49	43	53	47	42	50	45	41	38
5	66	54	45	38	64	52	44	38	50	42	37	47	41	36	45	39	35	33
6	61	48	39	33	59	47	39	33	44	37	32	42	36	31	40	35	30	28
7	56	43	35	29	54	42	34	29	40	33	28	38	32	27	37	31	27	25
8	52	39	31	25	50	38	31	25	37	30	25	35	29	24	33	28	24	22
9	49	36	28	23	47	35	28	22	34	27	22	32	26	22	31	25	21	19
10	46	33	25	20	44	32	25	20	31	24	20	30	24	19	28	23	19	17

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	13208	13208	13208
5°	12863	13209	12491
10°	12764	13161	12076
15°	12792	13093	11733
20°	12870	13010	11497
25°	12973	12906	11351
30°	13175	12740	11310
35°	13373	12578	11309
40°	13531	12373	11377
45°	13495	12131	11336
50°	13293	11814	10921
55°	13169	11431	10021
60°	13137	10916	8735
65°	12922	10220	6943
70°	12610	9278	4837
75°	12214	7972	2640
80°	11426	6274	369
85°	10598	3897	0



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	45°	90°	135°	180°	Flux
0°-10°	127.4	2.4	2.2	0°	1338	1338	1338	1338	1338	
10°-20°	374.3	7.0	6.5	5°	1349	1349	1337	1324	1310	130
20°-30°	593.4	11.1	10.2	15°	1402	1365	1293	1284	1286	398
30°-40°	765.6	14.3	13.2	25°	1440	1357	1204	1222	1260	667
40°-50°	868.0	16.2	15.0	35°	1458	1319	1069	1141	1233	914
50°-60°	860.7	16.0	14.8	45°	1400	1251	899	1053	1176	1079
60°-70°	725.9	13.5	12.5	55°	1255	1111	697	933	955	1125
70°-80°	475.0	8.9	8.2	65°	1085	908	470	669	583	1073
80°-90°	225.0	4.2	3.9	75°	856	685	236	286	185	899
90°-100°	140.6	2.6	2.4	85°	573	407	48	6	0	497
100°-110°	99.4	1.9	1.7	90°	483	317	6	4	1	267
110°-120°	62.3	1.2	1.1	95°	451	280	6	4	0	355
120°-130°	32.6	0.6	0.6	105°	348	198	5	3	0	369
130°-140°	12.7	0.2	0.2	115°	253	123	5	4	1	252
140°-150°	3.1	0.1	0.1	125°	157	55	6	4	1	142
150°-160°	0.0	0.0	0.0	135°	70	12	7	5	2	55
160°-170°	0.0	0.0	0.0	145°	10	6	8	6	3	7
170°-180°	0.0	0.0	0.0	155°	0	0	0	0	0	0
0°-30°	1095.0	20.4	18.9	165°	0	0	0	0	0	0
0°-40°	1860.7	34.7	32.1	175°	0	0	0	0	0	0
0°-60°	3589.4	66.9	61.9	180°	0	0	0	0	0	0
0°-90°	5015.3	93.5	86.5							
90°-120°	302.2	5.6	5.2							
90°-150°	350.7	6.5	6.0							
90°-180°	351.0	6.5	6.1							
0°-180°	5365.9	100.0	92.5							



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	1338	1338	1338	1338	1338	1338	1338	1338	1338
2.5°	1336	1348	1344	1343	1341	1335	1332	1329	1316
5°	1349	1358	1349	1343	1337	1328	1324	1322	1310
7.5°	1362	1368	1353	1340	1330	1320	1314	1316	1304
10°	1374	1377	1357	1337	1321	1308	1305	1309	1300
12.5°	1388	1389	1362	1332	1308	1294	1296	1303	1293
15°	1402	1401	1365	1324	1293	1279	1284	1295	1286
17.5°	1415	1412	1366	1314	1275	1262	1268	1284	1280
20°	1425	1418	1365	1300	1254	1242	1253	1273	1273
22.5°	1432	1421	1362	1285	1230	1220	1238	1265	1265
25°	1440	1425	1357	1268	1204	1196	1222	1256	1260
27.5°	1448	1429	1349	1248	1173	1170	1204	1245	1254
30°	1455	1432	1340	1226	1140	1141	1184	1235	1249
32.5°	1458	1431	1331	1204	1106	1110	1163	1225	1243
35°	1458	1427	1319	1180	1069	1076	1141	1215	1233
37.5°	1455	1420	1306	1154	1030	1041	1118	1203	1226
40°	1445	1409	1289	1127	988	1005	1098	1190	1215
42.5°	1426	1393	1272	1096	944	968	1076	1176	1198
45°	1400	1366	1251	1063	899	929	1053	1158	1176
47.5°	1365	1333	1227	1028	851	890	1030	1129	1140
50°	1328	1292	1195	992	801	849	1003	1090	1091
52.5°	1290	1248	1157	956	750	809	972	1039	1028
55°	1255	1206	1111	918	697	769	933	975	955
57.5°	1223	1168	1057	876	642	729	884	902	876
60°	1182	1131	1003	833	586	688	823	819	786
62.5°	1135	1085	954	788	529	646	751	727	688
65°	1085	1034	908	740	470	604	669	629	583
67.5°	1031	981	860	683	410	558	580	525	480
70°	975	925	804	614	352	503	486	421	374
72.5°	915	865	746	542	293	434	386	317	275
75°	856	804	685	483	236	354	286	222	185
77.5°	788	738	623	429	182	274	192	137	100
80°	712	662	557	372	132	192	111	55	23
82.5°	635	586	480	311	86	111	37	5	1
85°	573	524	407	245	48	47	6	2	0
87.5°	520	472	352	180	19	12	4	2	0
90°	483	438	317	143	6	9	4	2	1
92.5°	464	421	302	127	6	9	4	2	0
95°	451	405	280	109	6	8	4	2	0
97.5°	424	377	256	94	5	7	4	2	0
100°	395	352	237	80	5	6	4	2	0
102.5°	372	330	217	67	5	6	4	2	0
105°	348	308	198	55	5	5	3	1	0
107.5°	325	285	178	44	5	5	3	1	0
110°	302	263	159	33	5	5	3	2	0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	278	239	141	24	5	5	4	2	0
115°	253	217	123	16	5	5	4	2	1
117.5°	229	194	105	10	6	5	4	2	1
120°	204	171	88	7	6	5	4	2	1
122.5°	180	150	71	6	6	6	4	2	1
125°	157	128	55	6	6	6	4	3	1
127.5°	134	107	41	6	6	6	5	3	2
130°	112	87	28	6	6	6	5	3	2
132.5°	90	67	18	6	7	6	5	3	2
135°	70	49	12	6	7	7	5	4	2
137.5°	50	32	8	7	7	7	6	4	3
140°	32	20	6	7	8	7	6	4	3
142.5°	19	12	6	7	8	7	6	4	3
145°	10	7	6	7	8	8	6	4	3
147.5°	0	0	0	0	0	0	0	0	0
150°	0	0	0	0	0	0	0	0	0
152.5°	0	0	0	0	0	0	0	0	0
155°	0	0	0	0	0	0	0	0	0
157.5°	0	0	0	0	0	0	0	0	0
160°	0	0	0	0	0	0	0	0	0
162.5°	0	0	0	0	0	0	0	0	0
165°	0	0	0	0	0	0	0	0	0
167.5°	0	0	0	0	0	0	0	0	0
170°	0	0	0	0	0	0	0	0	0
172.5°	0	0	0	0	0	0	0	0	0
175°	0	0	0	0	0	0	0	0	0
177.5°	0	0	0	0	0	0	0	0	0
180°	0	0	0	0	0	0	0	0	0

(END OF REPORT)