Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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: McGRAW-EDISON

Report Number: P821299

Luminaire Tested: **TT-D3-740-24VDC-MQ-UPL**

Issue Date: 7/23/2020

Report Generated By 670245763

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P821299
	REPORT IS FROM IESNA LM-79-08 TEST DATA - UPLIGHT (G2-2002-677-1) AND
Test Lab:	INNOVATION CENTER
Issue Date:	7/23/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D3-740-24VDC-MQ-UPL
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE WITH UPLIGHT
	4000K, 70 CRI LEDS AND MEDIUM DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	7612.7 lumens
Efficiency:	N/A
Efficacy:	165.5 lumens/watt
Luminous Opening:	Vertical Cylinder (Dia: 1.12' x H: 0.1')
IES Classification:	Type V - Short
BUG Rating:	B3 - U4 - G2

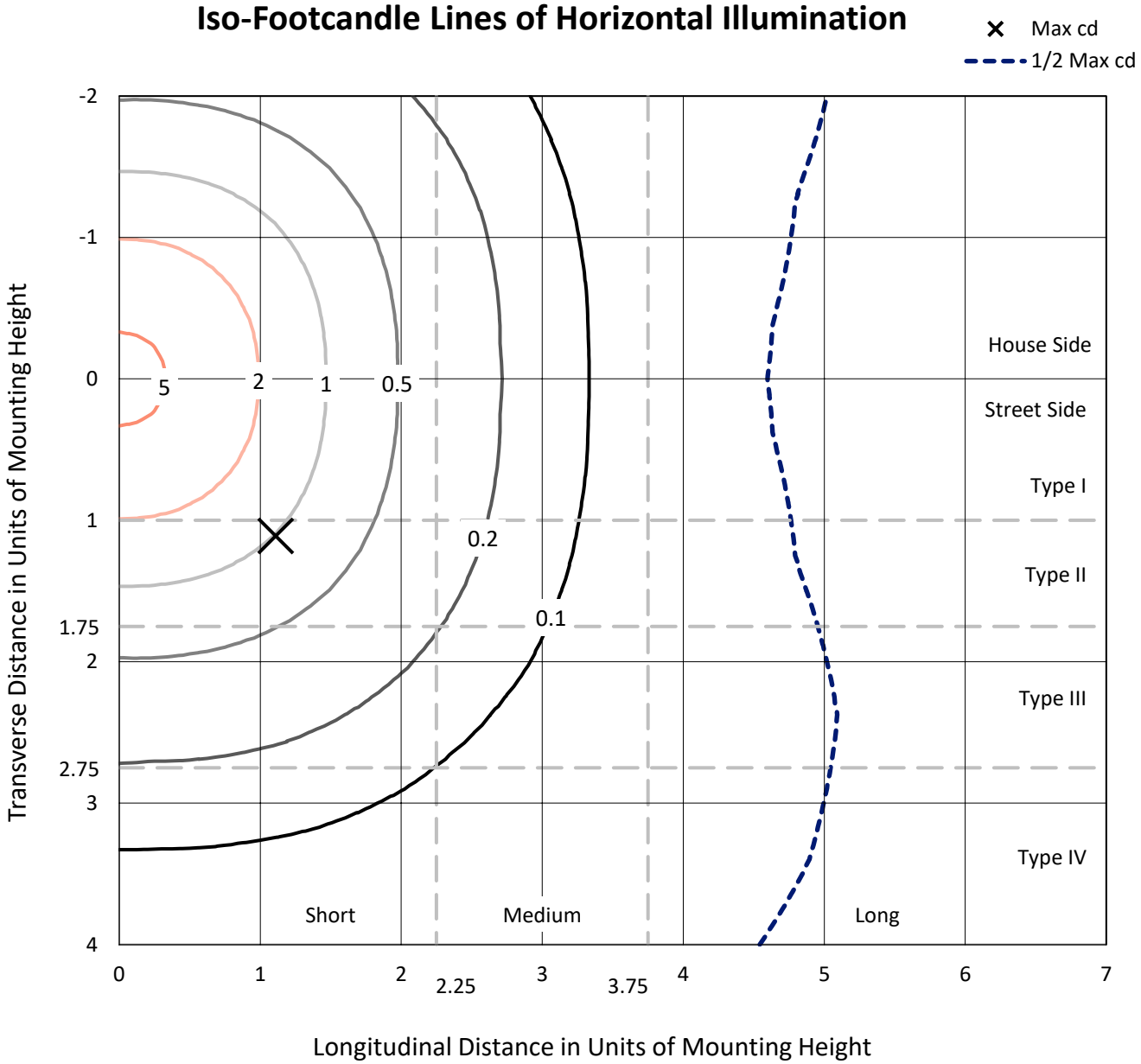
Input Watts (W):	46
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821299
CATALOG NUMBER: TT-D3-740-24VDC-MQ-UPL

Iso-Footcandle Lines of Horizontal Illumination



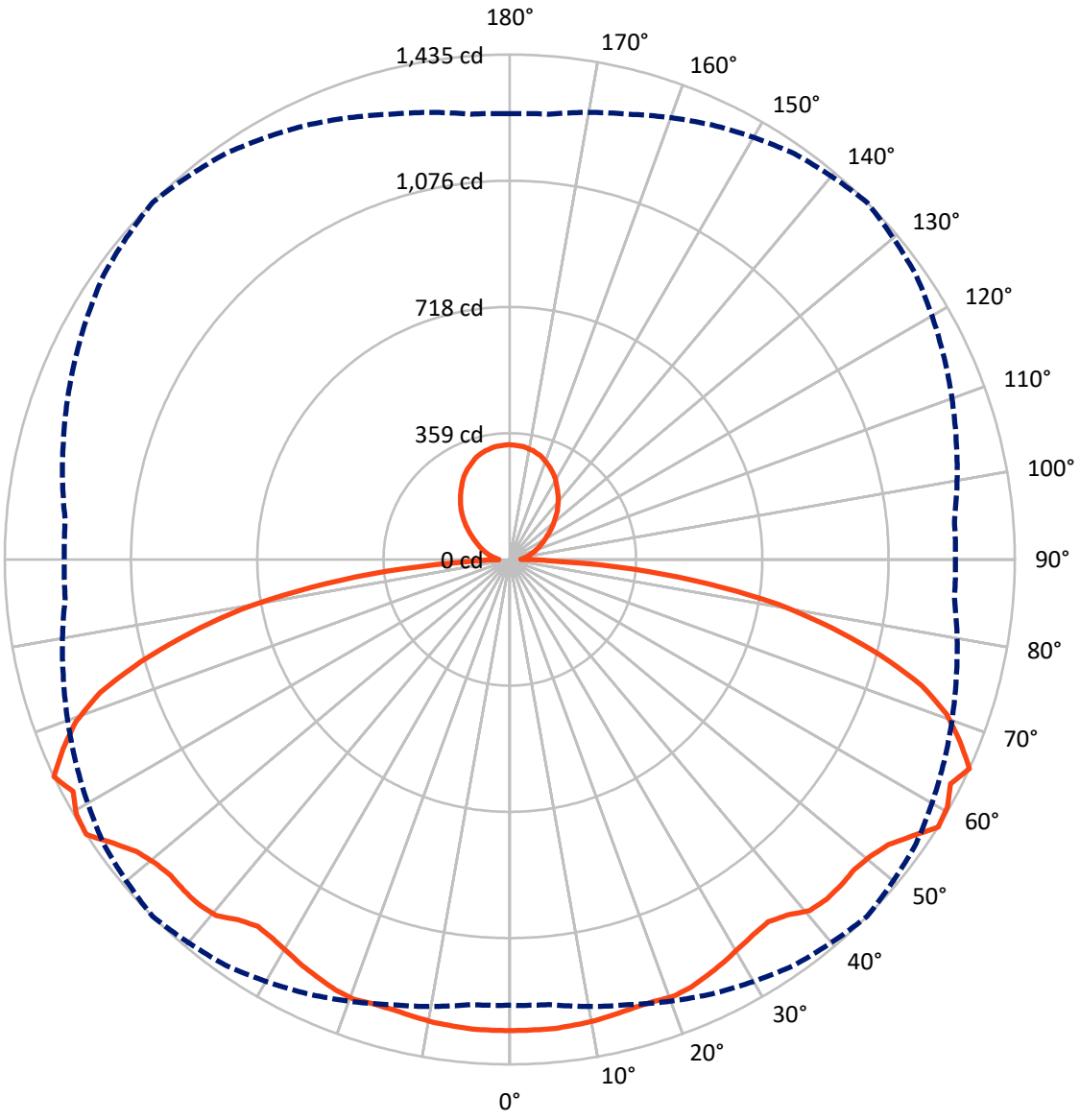
Based on 15 foot mounting height. Maximum calculated value = 6 fc
Type V - Short - N/A

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821299
CATALOG NUMBER: TT-D3-740-24VDC-MQ-UPL

Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

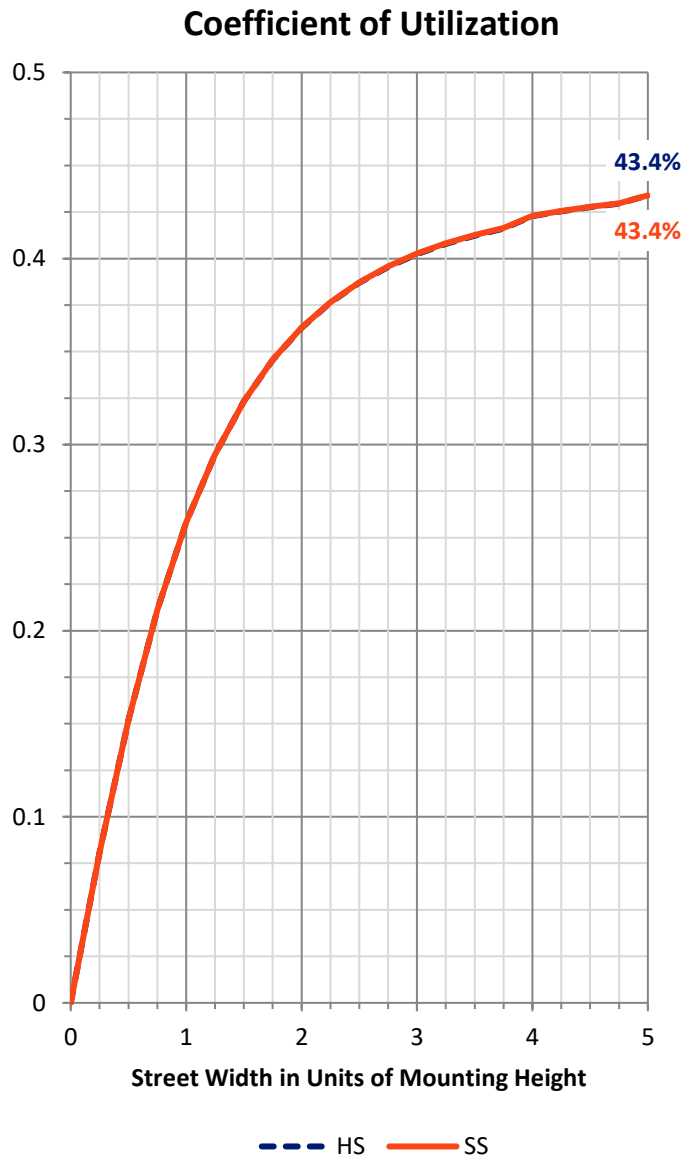
REPORT NUMBER: P821299
CATALOG NUMBER: TT-D3-740-24VDC-MQ-UPL

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3363.6	442.7	3806.3
	% Fixture	44.2	5.8	50.0
Street Side	Lumens	3363.6	442.7	3806.3
	% Fixture	44.2	5.8	50.0
Total	Lumens	6727.2	885.5	7612.7
	% Fixture	88.4	11.6	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.6	1.7
10°-20°	375.3	4.9
20°-30°	603.0	7.9
30°-40°	796.1	10.5
40°-50°	996.0	13.1
50°-60°	1184.7	15.6
60°-70°	1284.9	16.9
70°-80°	1022.8	13.4
80°-90°	336.7	4.4
90°-100°	45.4	0.6
100°-110°	70.3	0.9
110°-120°	97.7	1.3
120°-130°	126.6	1.7
130°-140°	147.6	1.9
140°-150°	149.5	2.0
150°-160°	129.8	1.7
160°-170°	87.7	1.2
170°-180°	30.8	0.4
0°-90°	6727.2	88.4
0°-180°	7612.7	100.0



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

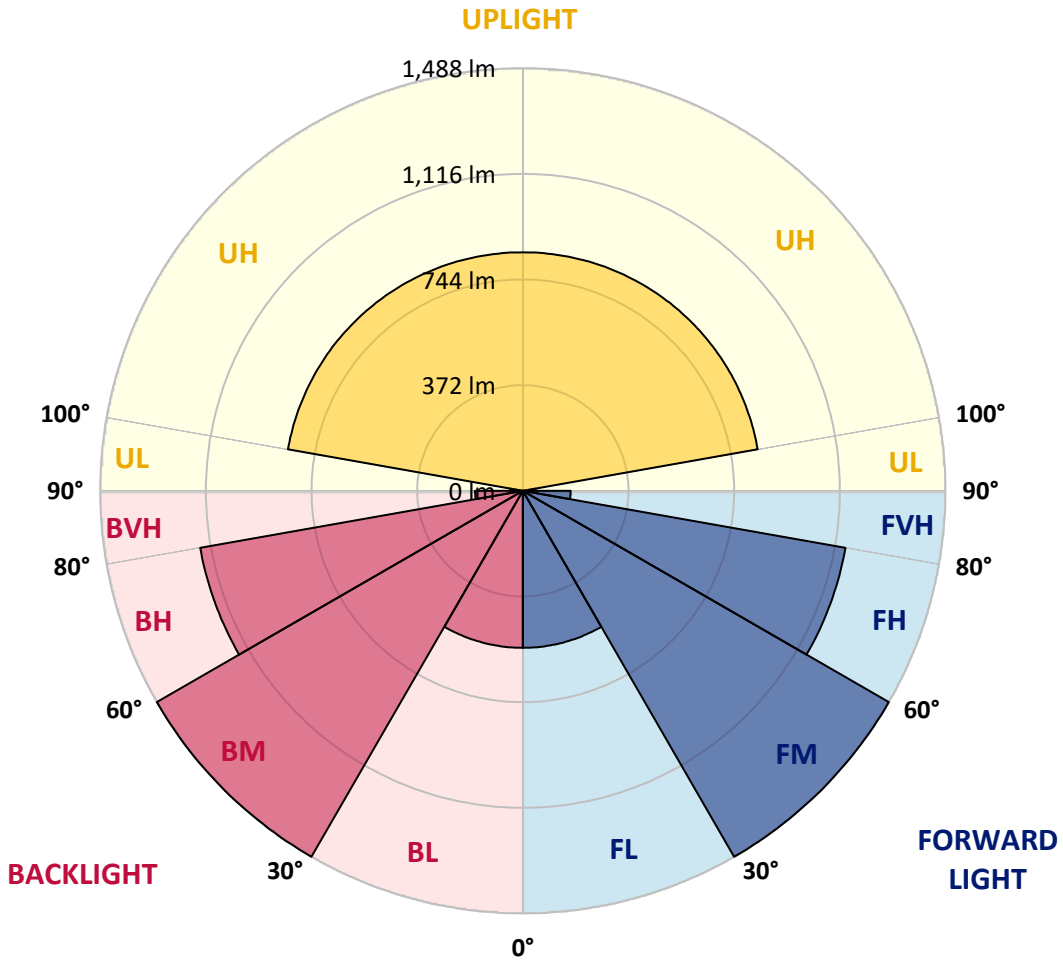
Scaled Data Report

REPORT NUMBER: P821299
CATALOG NUMBER: TT-D3-740-24VDC-MQ-UPL

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	553.0	7.3			
FM	(30°-60°)	1488.4	19.6			
FH	(60°-80°)	1153.8	15.2			G1/1800
FVH	(80°-90°)	168.4	2.2			G2/225
BL	(0°-30°)	553.0	7.3	B2/1000		
BM	(30°-60°)	1488.4	19.6	B2/2500		
BH	(60°-80°)	1153.8	15.2	B3/2500		G1/1800
BVH	(80°-90°)	168.4	2.2			G2/225
UL	(90°-100°)	45.4	0.6		U2/50	
UH	(100°-180°)	840.1	11.0		U4/1000	

BUG Rating: B3-U4-G2
Type V Short



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821299
CATALOG NUMBER: TT-D3-740-24VDC-MQ-UPL

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1339	1339	1339	1339	1339	1339	1339	1339	1339	1339	1339
2.5°	1341	1340	1341	1340	1340	1339	1340	1340	1340	1340	1340
5°	1340	1339	1339	1340	1339	1339	1339	1339	1339	1339	1339
7.5°	1336	1336	1337	1336	1336	1336	1336	1336	1336	1337	1337
10°	1333	1332	1333	1333	1332	1333	1332	1333	1333	1333	1333
12.5°	1329	1328	1329	1329	1328	1327	1328	1328	1329	1329	1329
15°	1322	1322	1324	1323	1323	1322	1324	1323	1322	1323	1323
17.5°	1317	1317	1319	1321	1321	1321	1321	1320	1318	1319	1317
20°	1318	1319	1320	1323	1325	1326	1326	1323	1320	1321	1320
22.5°	1315	1314	1315	1317	1320	1320	1320	1316	1315	1314	1314
25°	1303	1303	1305	1307	1309	1308	1309	1307	1305	1303	1303
27.5°	1289	1289	1292	1294	1296	1296	1295	1293	1292	1290	1289
30°	1275	1275	1278	1280	1283	1282	1282	1279	1276	1274	1274
32.5°	1260	1259	1262	1267	1271	1271	1271	1265	1261	1259	1258
35°	1247	1247	1251	1260	1265	1265	1263	1259	1250	1247	1247
37.5°	1243	1246	1257	1270	1280	1282	1279	1268	1256	1247	1244
40°	1256	1259	1273	1294	1309	1312	1309	1293	1272	1258	1257
42.5°	1258	1260	1277	1301	1315	1320	1315	1299	1276	1259	1258
45°	1251	1252	1272	1297	1314	1320	1314	1295	1271	1252	1251
47.5°	1242	1244	1266	1292	1313	1317	1312	1291	1264	1245	1242
50°	1235	1241	1261	1290	1315	1327	1315	1287	1260	1239	1235
52.5°	1239	1241	1267	1308	1342	1347	1341	1308	1265	1241	1238
55°	1251	1260	1288	1347	1378	1387	1374	1345	1289	1260	1251
57.5°	1267	1270	1310	1362	1408	1435	1409	1361	1313	1268	1266
60°	1254	1245	1295	1356	1418	1429	1414	1357	1293	1244	1253
62.5°	1219	1225	1266	1350	1393	1405	1389	1350	1264	1230	1216
65°	1191	1227	1272	1332	1401	1435	1402	1330	1274	1221	1188
67.5°	1152	1159	1226	1300	1362	1379	1361	1301	1220	1154	1159
70°	1086	1076	1144	1230	1289	1316	1291	1226	1141	1074	1083
72.5°	977	983	1046	1137	1198	1224	1199	1130	1044	989	983
75°	863	870	931	1014	1076	1087	1080	1009	933	869	863
77.5°	733	740	790	881	918	935	920	886	788	739	731
80°	589	587	631	709	755	774	755	711	629	591	578
82.5°	421	423	464	518	562	568	559	523	460	428	410
85°	234	243	273	313	342	352	337	303	272	247	239
87.5°	56	61	71	90	101	111	101	94	67	61	56
90°	32	31	31	31	31	31	31	31	31	31	31
92.5°	37	37	36	36	36	36	36	36	36	36	36
95°	42	42	42	41	41	41	41	41	41	41	41
97.5°	48	48	47	47	47	47	47	47	47	47	47
100°	53	53	53	53	53	53	53	53	53	53	53
102.5°	60	59	60	60	59	59	59	60	60	60	59
105°	66	66	66	66	66	66	66	67	66	66	66
107.5°	73	73	73	74	74	74	74	74	73	74	73
110°	80	80	81	81	81	81	81	81	81	81	81

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821299
CATALOG NUMBER: TT-D3-740-24VDC-MQ-UPL

CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
112.5°	89	89	89	89	89	90	90	90	90	90	89
115°	97	97	98	98	98	98	99	99	98	98	98
117.5°	107	107	107	107	107	108	108	108	108	108	107
120°	117	117	117	118	118	118	119	119	118	118	118
122.5°	129	128	129	129	129	129	130	130	130	130	129
125°	140	140	141	141	141	141	142	142	142	142	141
127.5°	153	153	153	153	153	154	154	154	154	154	154
130°	165	165	166	166	166	166	167	167	167	167	166
132.5°	179	178	179	178	178	179	179	180	179	180	179
135°	191	191	191	191	191	192	192	192	192	192	192
137.5°	204	203	204	203	203	204	204	204	204	204	204
140°	216	215	216	215	216	216	216	216	216	216	216
142.5°	228	227	228	227	227	228	228	228	228	228	228
145°	239	239	239	238	239	239	239	239	239	239	239
147.5°	250	249	250	249	249	250	250	250	250	250	250
150°	263	262	263	262	263	263	263	263	263	263	263
152.5°	273	273	273	273	273	273	273	273	273	273	273
155°	282	282	283	282	282	282	283	282	282	282	282
157.5°	290	290	290	290	290	290	291	291	290	291	290
160°	298	298	299	298	298	298	299	298	298	298	298
162.5°	306	305	306	305	306	306	306	306	306	306	306
165°	311	311	312	311	311	311	312	311	311	311	311
167.5°	316	315	316	316	316	316	316	316	316	316	316
170°	319	319	320	319	319	319	320	319	319	319	319
172.5°	323	323	323	323	323	323	323	323	323	323	323
175°	324	324	325	324	325	324	325	324	324	324	324
177.5°	325	325	326	325	325	325	325	325	325	325	325
180°	326	326	326	326	326	326	326	326	326	326	326

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-5

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-740-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-740-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

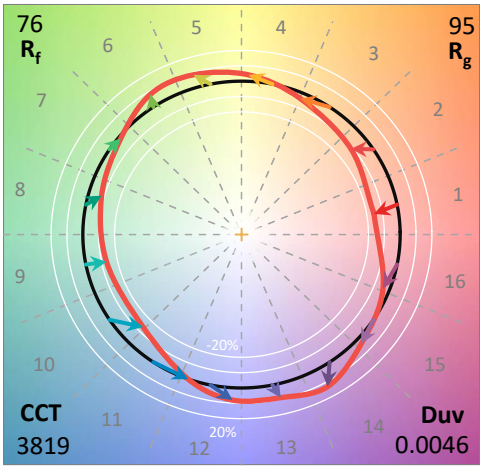
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-5
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/27/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-VA-30-740-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	3819	CRI (Ra):	72.9		
CIE u':	0.2261	R1:	70.1	R9:	-21.5
CIE v':	0.5108	R2:	78.4	R10:	48.5
Duv:	0.0046	R3:	85.0	R11:	68.4
CIE x:	0.3926	R4:	72.9	R12:	39.0
CIE y:	0.3942	R5:	69.1	R13:	71.1
CIE z:	0.2132	R6:	69.2	R14:	91.3
Peak Wavelength (nm):	450	R7:	82.8	R15:	63.2
Dominant Wavelength (nm):	577	R8:	55.4		
Purity:	36.15483				

Rf:	75.6
Rg:	94.8



Test Conditions

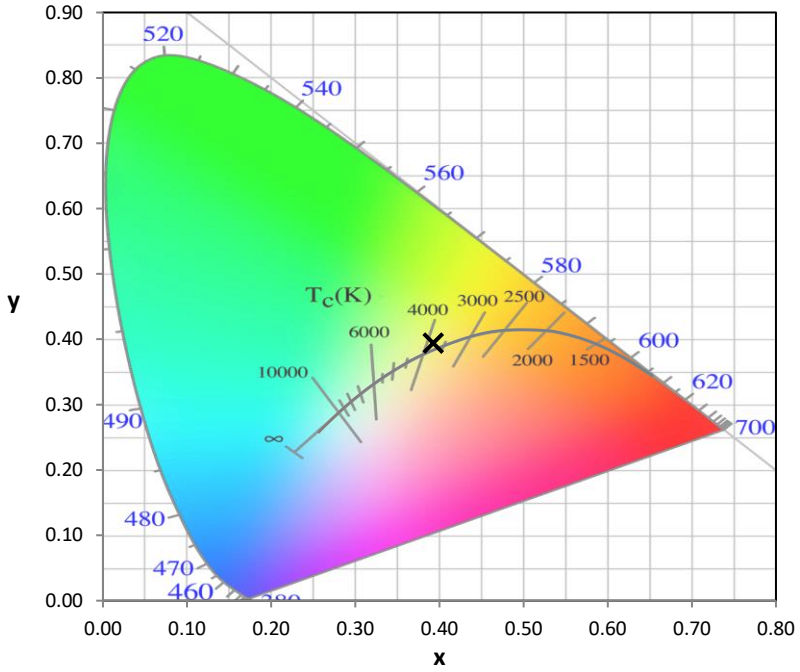
Stabilization Time:	30M
Operation Time:	1H 30M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-5

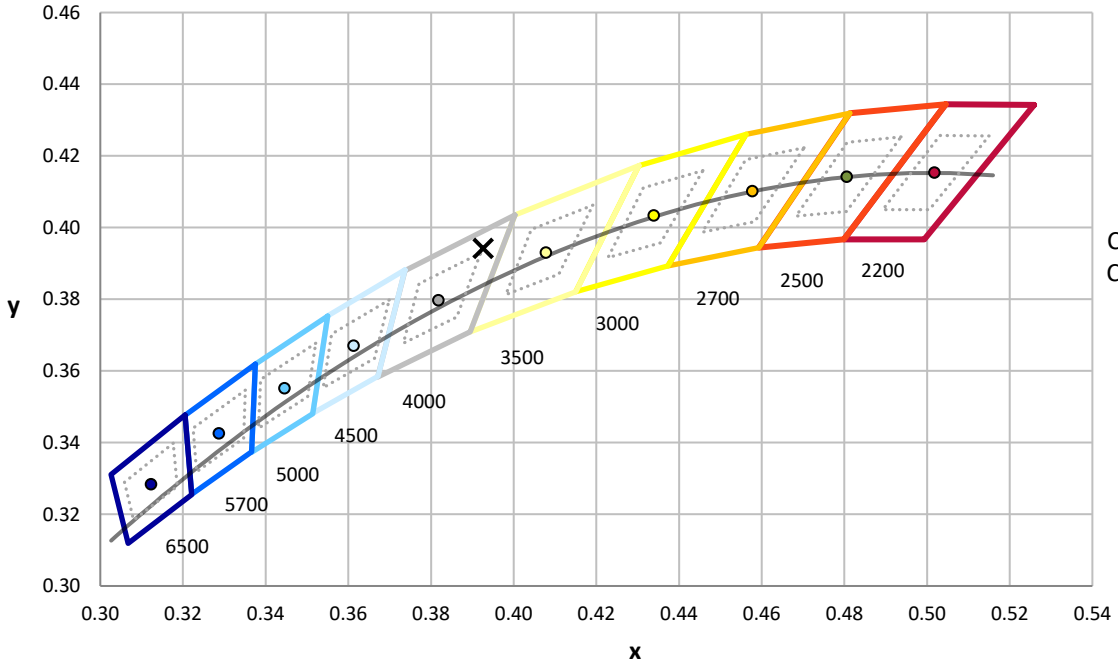
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-176-5

CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles

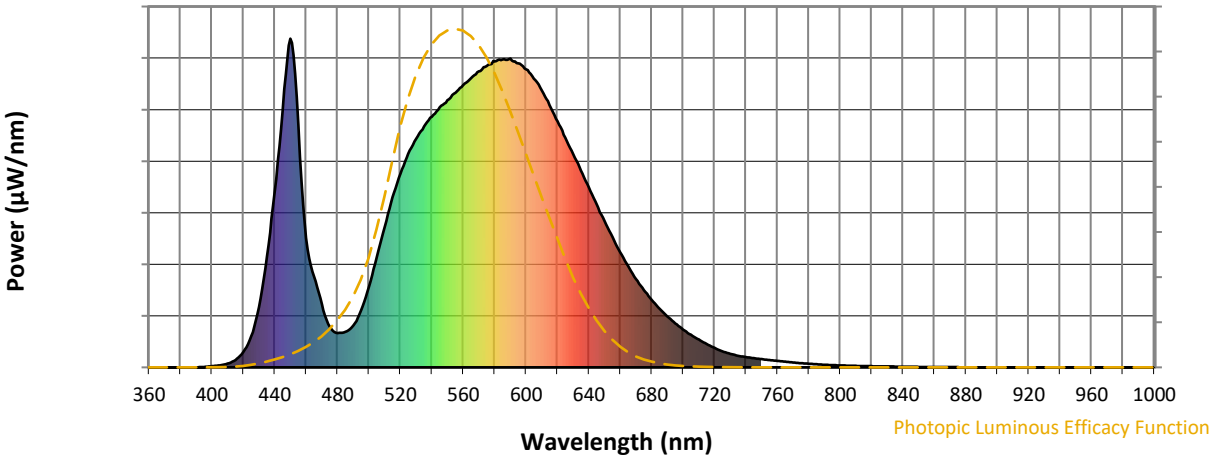


CCT = 3819K
CIE x = 0.3926
CIE y = 0.3942
Duv = 0.0046

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-5

Photopic Flux vs. Wavelength

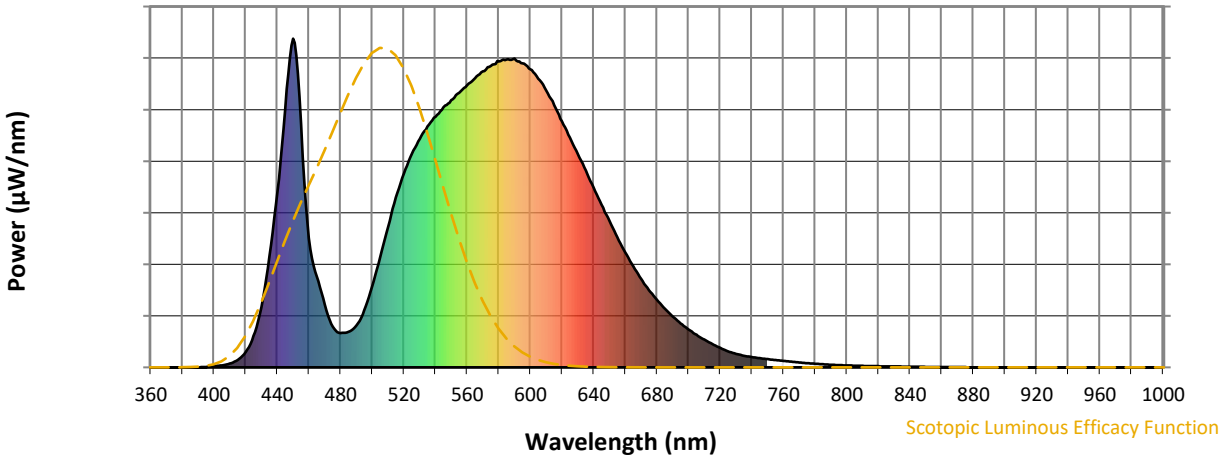


Photopic Lumens: NR

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-5

Scotopic Flux vs. Wavelength

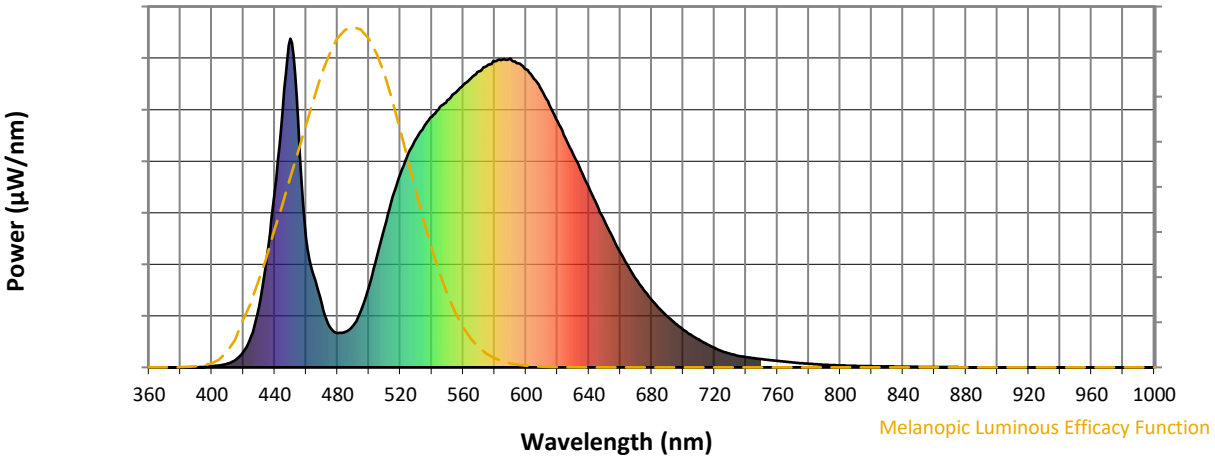


Scotopic Lumens: NR **S/P: 1.45**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.76**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

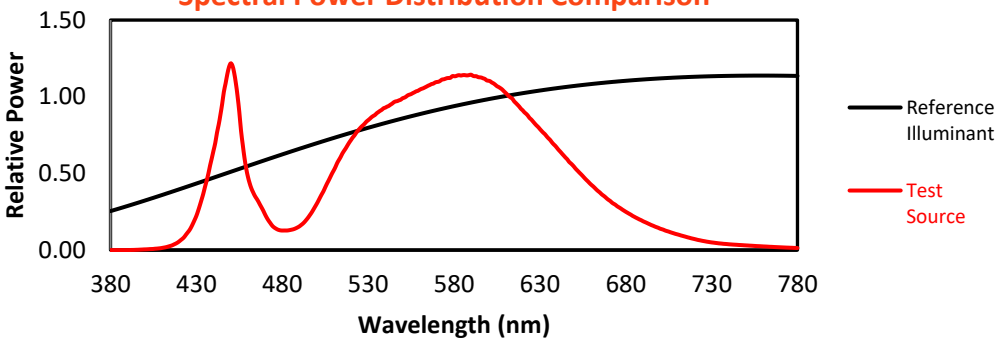
REPORT NUMBER: SP1-2407-176-5

TM-30-18

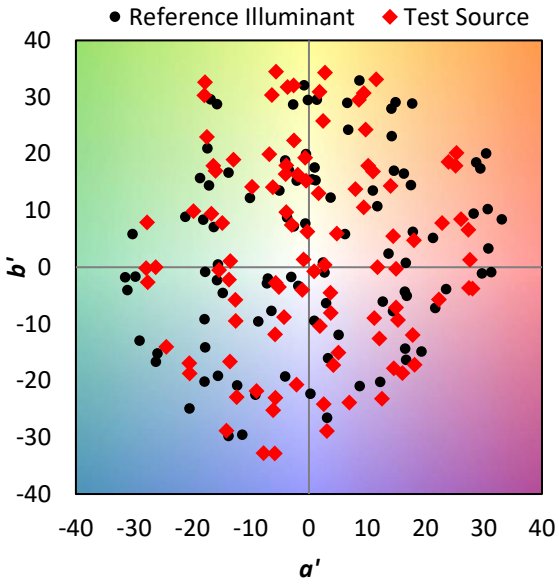
Summary

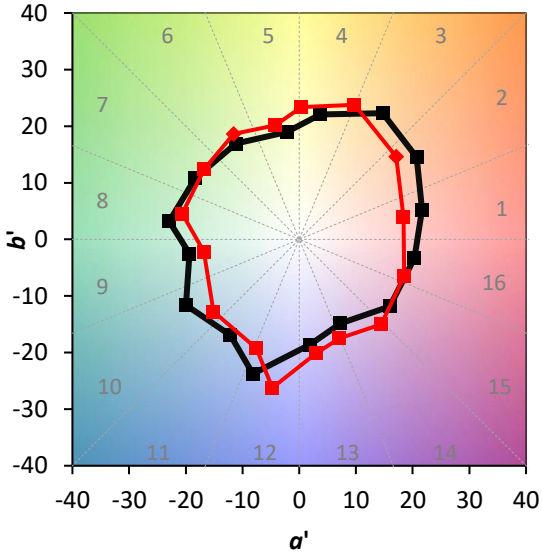
R_f = 75.6
R_g = 94.8
CIE R_a = 72.9
R_9 = -21.5

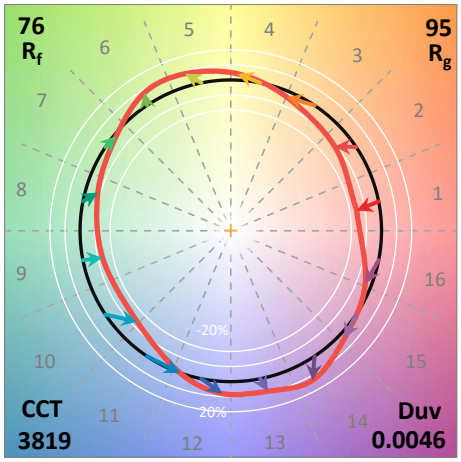
Spectral Power Distribution Comparison

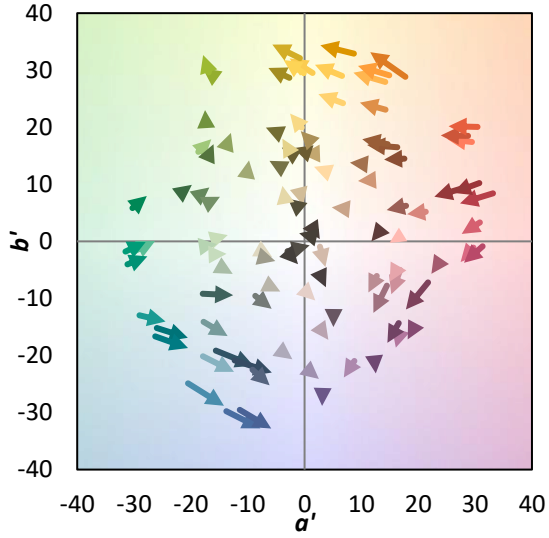


Color Vector Graphics







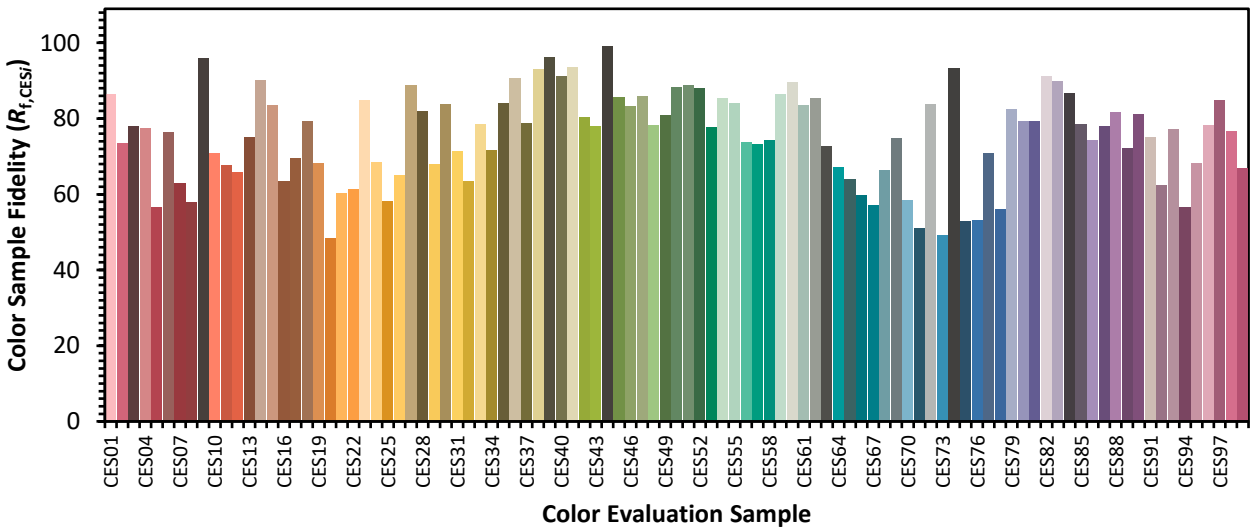


REPORT NUMBER: SP1-2407-176-5

TM-30-18

Individual Sample Fidelity Index ($R_{f,i}$)

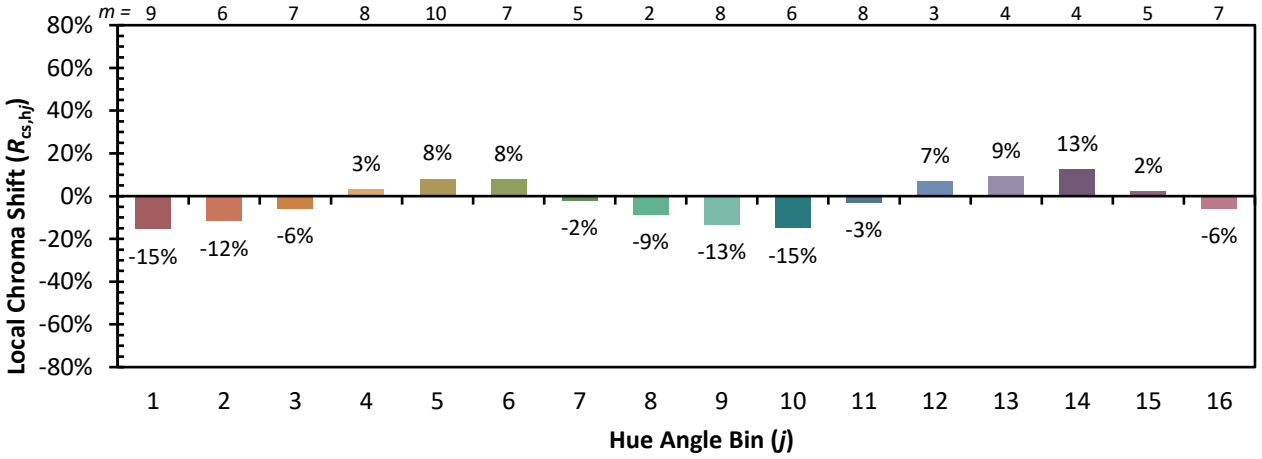
CES01 = 85	CES26 = 65	CES51 = 89	CES76 = 53
CES02 = 61	CES27 = 89	CES52 = 88	CES77 = 71
CES03 = 30	CES28 = 82	CES53 = 78	CES78 = 56
CES04 = 70	CES29 = 68	CES54 = 85	CES79 = 83
CES05 = 48	CES30 = 84	CES55 = 84	CES80 = 79
CES06 = 50	CES31 = 71	CES56 = 74	CES81 = 79
CES07 = 40	CES32 = 63	CES57 = 73	CES82 = 91
CES08 = 39	CES33 = 79	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 84	CES60 = 90	CES85 = 78
CES11 = 57	CES36 = 91	CES61 = 84	CES86 = 74
CES12 = 63	CES37 = 79	CES62 = 85	CES87 = 78
CES13 = 42	CES38 = 93	CES63 = 73	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 67	CES89 = 72
CES15 = 71	CES40 = 91	CES65 = 64	CES90 = 81
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 75
CES17 = 49	CES42 = 80	CES67 = 57	CES92 = 62
CES18 = 56	CES43 = 78	CES68 = 66	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 75	CES94 = 57
CES20 = 65	CES45 = 86	CES70 = 58	CES95 = 68
CES21 = 86	CES46 = 83	CES71 = 51	CES96 = 78
CES22 = 78	CES47 = 86	CES72 = 84	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 49	CES98 = 77
CES24 = 91	CES49 = 81	CES74 = 93	CES99 = 67
CES25 = 72	CES50 = 88	CES75 = 53	

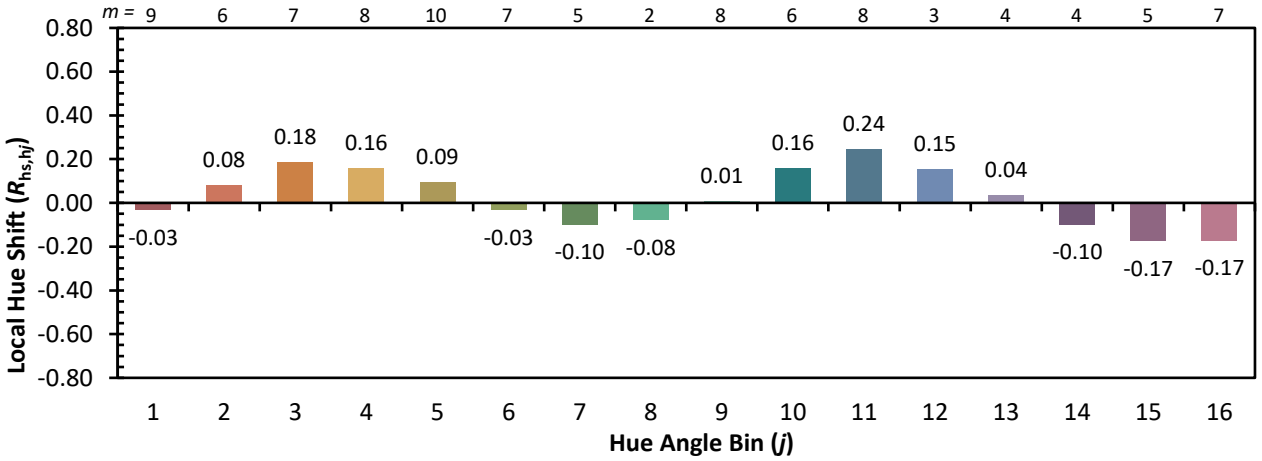


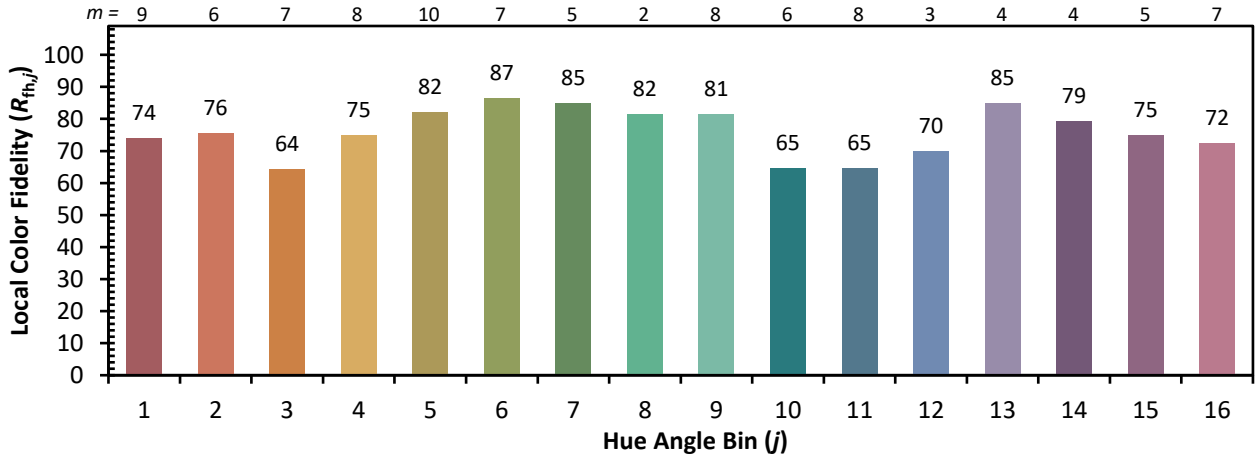
REPORT NUMBER: SP1-2407-176-5

TM-30-18

Color Rendition by Hue-Angle Bin



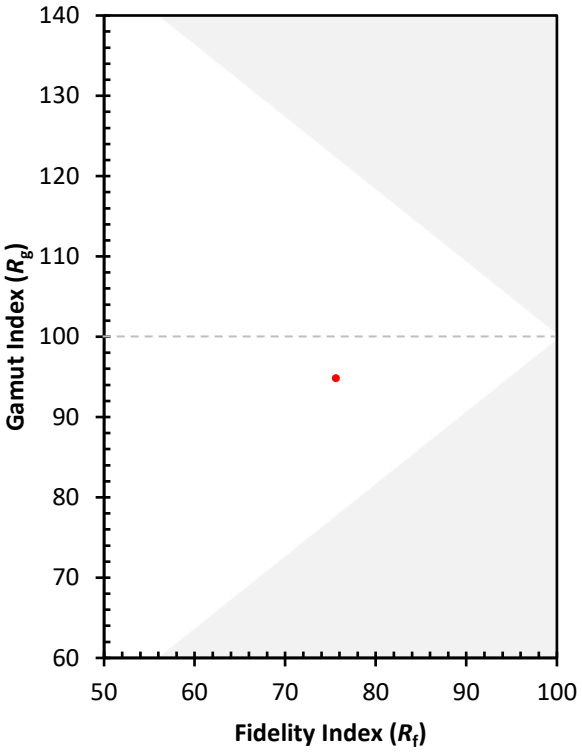


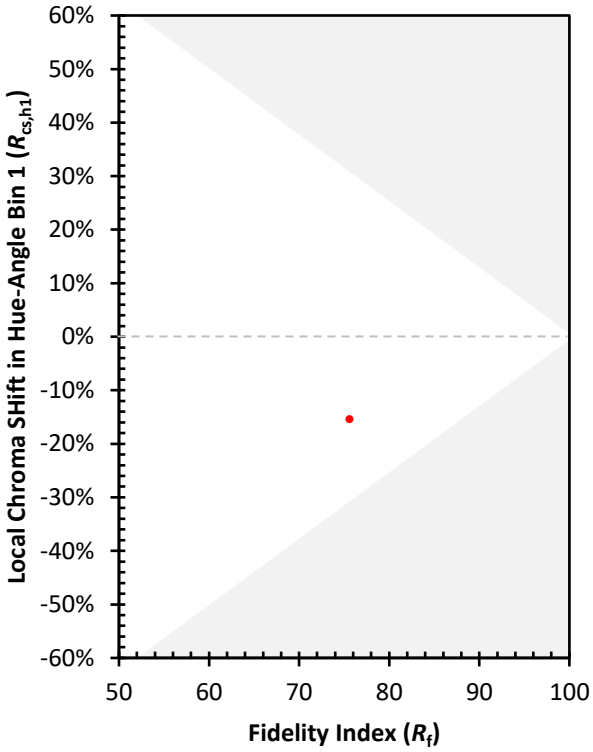


REPORT NUMBER: SP1-2407-176-5

TM-30-18

Measure Comparisons





(END OF REPORT)