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: P821211

Luminaire Tested: **TT-D2-735-24VDC-MQ**

Issue Date: 5/19/2020

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:	P821211
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-16)
Test Lab:	INNOVATION CENTER
Issue Date:	5/19/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D2-735-24VDC-MQ
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3500K, 70 CRI LEDS AND MEDIUM DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5269 lumens
Efficiency:	N/A
Efficacy:	138.7 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B2 - U0 - G2

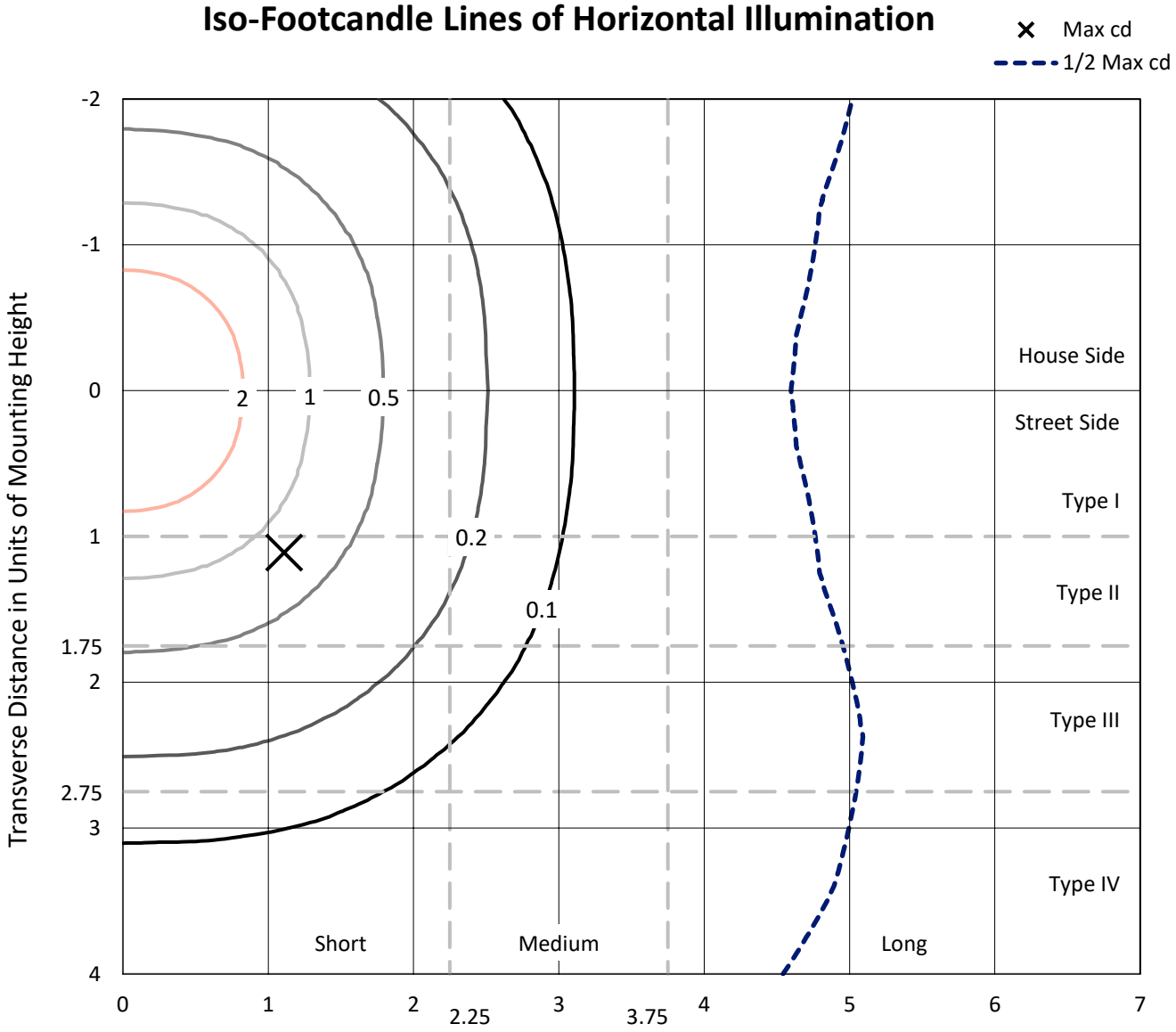
Input Watts (W):	38
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Scaled Data Report

REPORT NUMBER: P821211
CATALOG NUMBER: TT-D2-735-24VDC-MQ

Iso-Footcandle Lines of Horizontal Illumination



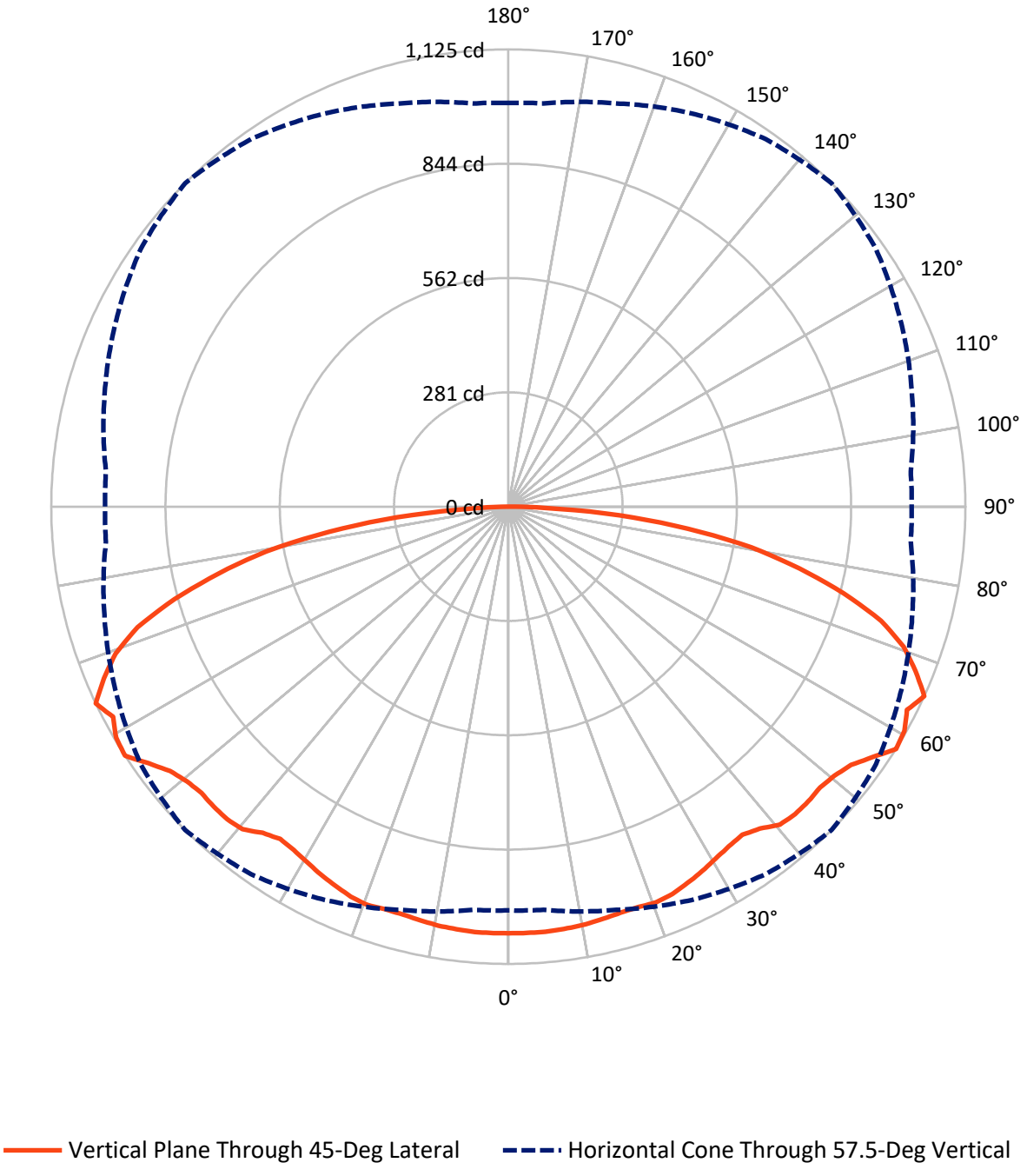
Based on 15 foot mounting height. Maximum calculated value = 4.7 fc
Type V - Short - N/A

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REPORT NUMBER: P821211
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Luminous Intensity Polar Plot



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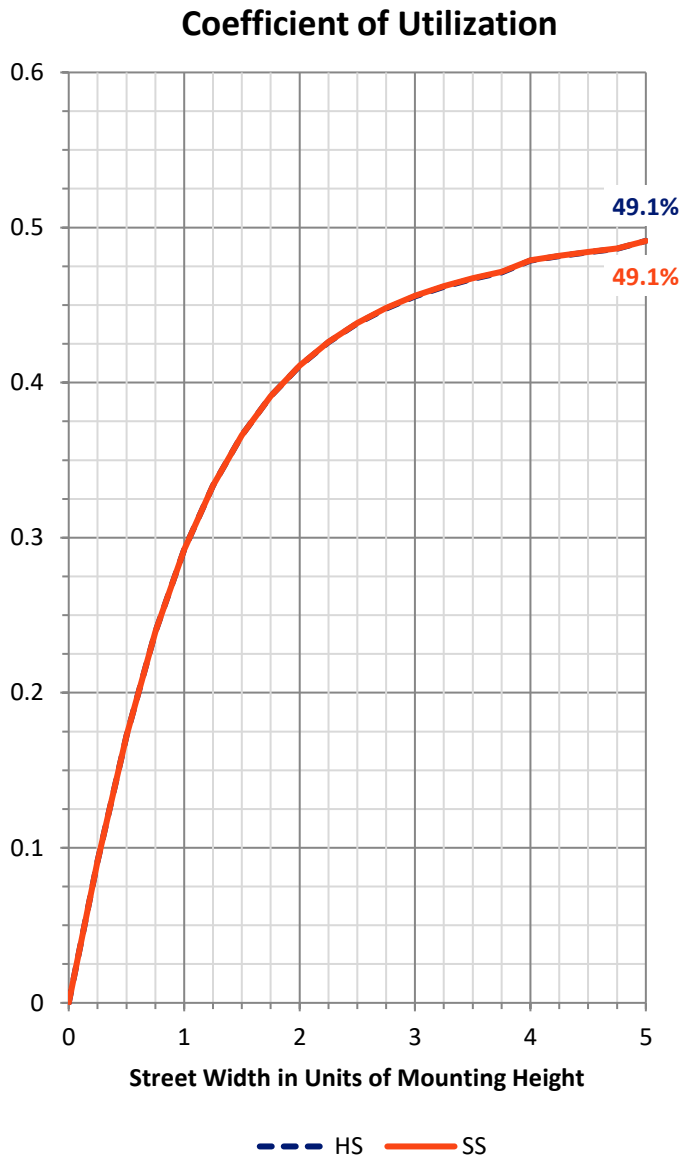
REPORT NUMBER: P821211
CATALOG NUMBER: TT-D2-735-24VDC-MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2634.5	0.0	2634.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2634.5	0.0	2634.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	5269.0	0.0	5269.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.0	1.9
10°-20°	294.1	5.6
20°-30°	472.6	9.0
30°-40°	623.9	11.8
40°-50°	780.6	14.8
50°-60°	928.5	17.6
60°-70°	1007.0	19.1
70°-80°	801.6	15.2
80°-90°	260.6	4.9
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°-90°	5269.0	100.0
0°-180°	5269.0	100.0



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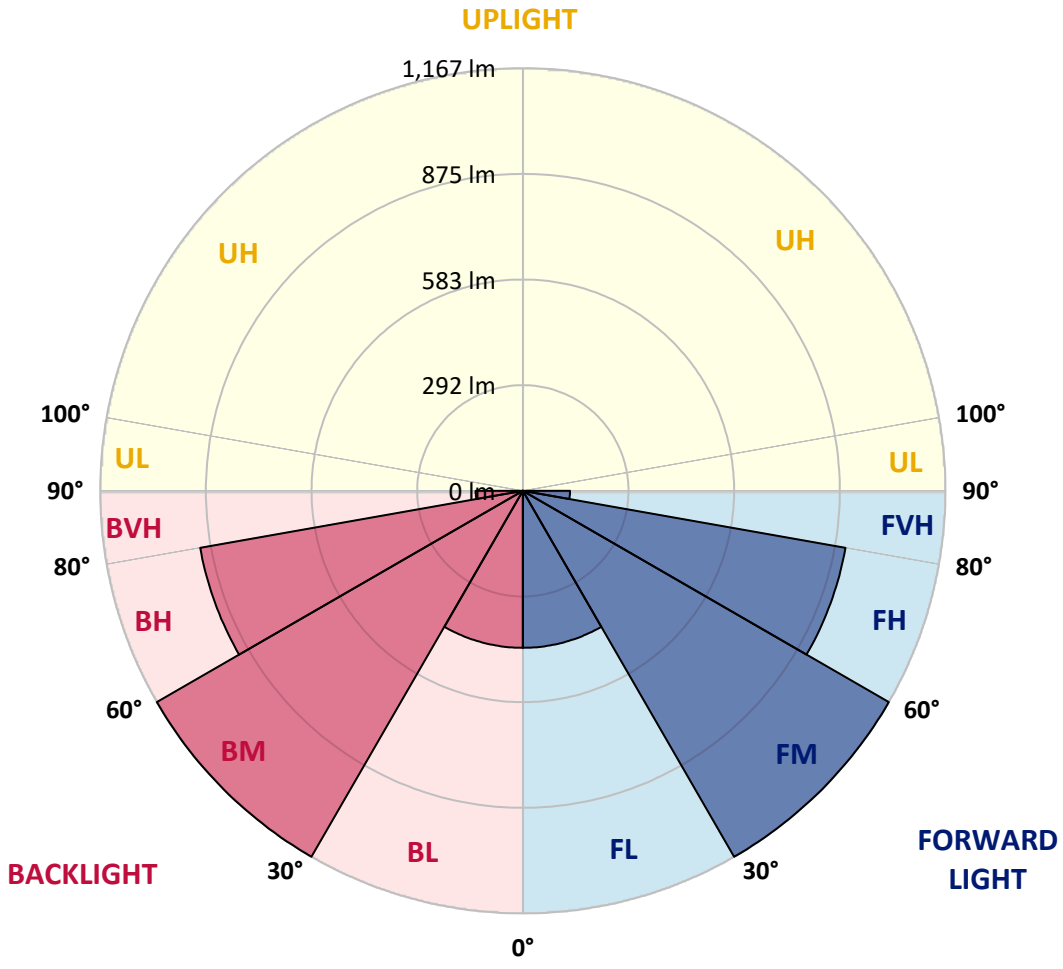
Scaled Data Report

REPORT NUMBER: P821211
CATALOG NUMBER: TT-D2-735-24VDC-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	433.4	8.2			
FM	(30°-60°)	1166.5	22.1			
FH	(60°-80°)	904.3	17.2			G1/1800
FVH	(80°-90°)	130.3	2.5			G2/225
BL	(0°-30°)	433.4	8.2	B1/500		
BM	(30°-60°)	1166.5	22.1	B2/2500		
BH	(60°-80°)	904.3	17.2	B2/1000		G1/1800
BVH	(80°-90°)	130.3	2.5			G2/225
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G2
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1049.4	1049.4	1049.4	1049.4	1049.4	*1049.4*	1049.4	1049.4	1049.4	1049.4	1049.4
2.5°	1051.0	1050.2	1051.0	1050.2	1050.2	*1049.4*	1050.2	1050.2	1050.2	1050.2	1050.2
5°	1050.2	1049.4	1049.4	1050.2	1049.4	*1049.4*	1049.4	1049.4	1049.4	1049.4	1049.4
7.5°	1047.1	1047.1	1047.9	1047.1	1047.1	*1047.1*	1047.1	1047.1	1047.1	1047.9	1047.9
10°	1044.7	1043.9	1044.7	1044.7	1043.9	*1044.7*	1043.9	1044.7	1044.7	1044.7	1044.7
12.5°	1041.6	1040.8	1041.6	1041.6	1040.8	*1040.0*	1040.8	1040.8	1041.6	1041.6	1041.6
15°	1036.1	1036.1	1037.7	1036.9	1036.9	*1036.1*	1037.7	1036.9	1036.1	1036.9	1036.9
17.5°	1032.2	1032.2	1033.7	1035.3	1035.3	*1035.3*	1035.3	1034.5	1033.0	1033.7	1032.2
20°	1033.0	1033.7	1034.5	1036.9	1038.4	*1039.2*	1039.2	1036.9	1034.5	1035.3	1034.5
22.5°	1030.6	1029.8	1030.6	1032.2	1034.5	*1034.5*	1034.5	1031.4	1030.6	1029.8	1029.8
25°	1021.2	1021.2	1022.8	1024.3	1025.9	*1025.1*	1025.9	1024.3	1022.8	1021.2	1021.2
27.5°	1010.2	1010.2	1012.6	1014.2	1015.7	*1015.7*	1014.9	1013.4	1012.6	1011.0	1010.2
30°	999.3	999.3	1001.6	1003.2	1005.5	*1004.7*	1004.7	1002.4	1000.0	998.5	998.5
32.5°	987.5	986.7	989.1	993.0	996.1	*996.1*	996.1	991.4	988.3	986.7	985.9
35°	977.3	977.3	980.5	987.5	991.4	*991.4*	989.9	986.7	979.7	977.3	977.3
37.5°	974.2	976.5	985.2	995.3	1003.2	*1004.7*	1002.4	993.8	984.4	977.3	975.0
40°	984.4	986.7	997.7	1014.2	1025.9	*1028.3*	1025.9	1013.4	996.9	985.9	985.2
42.5°	985.9	987.5	1000.8	1019.6	1030.6	*1034.5*	1030.6	1018.1	1000.0	986.7	985.9
45°	980.5	981.2	996.9	1016.5	1029.8	*1034.5*	1029.8	1014.9	996.1	981.2	980.5
47.5°	973.4	975.0	992.2	1012.6	1029.0	*1032.2*	1028.3	1011.8	990.6	975.8	973.4
50°	967.9	972.6	988.3	1011.0	1030.6	*1040.0*	1030.6	1008.7	987.5	971.0	967.9
52.5°	971.0	972.6	993.0	1025.1	1051.8	*1055.7*	1051.0	1025.1	991.4	972.6	970.3
55°	980.5	987.5	1009.5	1055.7	1080.0	*1087.0*	1076.9	1054.1	1010.2	987.5	980.5
57.5°	*993.0*	*995.3*	*1026.7*	*1067.4*	*1103.5*	*1124.7*	*1104.3*	*1066.7*	*1029.0*	*993.8*	*992.2*
60°	982.8	975.8	1014.9	1062.7	1111.3	*1120.0*	1108.2	1063.5	1013.4	975.0	982.0
62.5°	955.4	960.1	992.2	1058.0	1091.7	*1101.1*	1088.6	1058.0	990.6	964.0	953.0
65°	933.4	961.6	996.9	1043.9	1098.0	*1124.7*	1098.8	1042.4	998.5	956.9	931.1
67.5°	902.9	908.3	960.9	1018.9	1067.4	*1080.8*	1066.7	1019.6	956.2	904.4	908.3
70°	851.1	843.3	896.6	964.0	1010.2	*1031.4*	1011.8	960.9	894.2	841.7	848.8
72.5°	765.7	770.4	819.8	891.1	938.9	*959.3*	939.7	885.6	818.2	775.1	770.4
75°	676.4	681.9	729.7	794.7	843.3	*851.9*	846.4	790.8	731.2	681.1	676.4
77.5°	574.5	580.0	619.2	690.5	719.5	*732.8*	721.0	694.4	617.6	579.2	572.9
80°	461.6	460.1	494.5	555.7	591.7	*606.6*	591.7	557.2	493.0	463.2	453.0
82.5°	330.0	331.5	363.7	406.0	440.5	*445.2*	438.1	409.9	360.5	335.4	321.3
85°	183.4	190.4	214.0	245.3	268.0	*275.9*	264.1	237.5	213.2	193.6	187.3
87.5°	43.9	47.8	55.6	70.5	79.2	*87.0*	79.2	73.7	52.5	47.8	43.9
90°	0.0	0.0	0.0	0.0	0.0	*0.0*	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

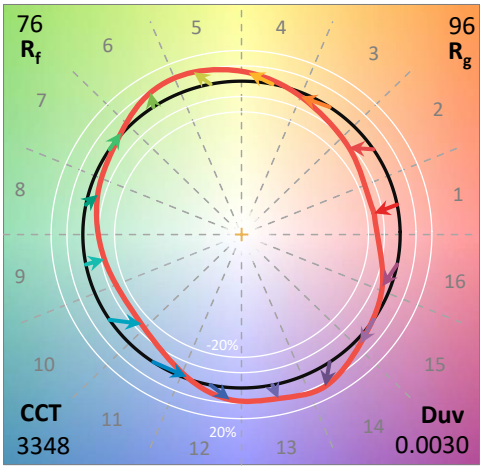
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-4
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-30-735-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	3348
CIE u':	0.2384
CIE v':	0.5184
Duv:	0.0030
CIE x:	0.4177
CIE y:	0.4036
CIE z:	0.1787
Peak Wavelength (nm):	593
Dominant Wavelength (nm):	580
Purity:	46.5223
Rf:	75.8
Rg:	95.8

CRI (Ra):	73.4
R1:	70.8
R2:	79.9
R3:	87.6
R4:	72.6
R5:	69.3
R6:	71.3
R7:	82.1
R8:	53.3
R9:	-19.2
R10:	52.5
R11:	68.0
R12:	42.6
R13:	72.0
R14:	92.6
R15:	63.8



Test Conditions

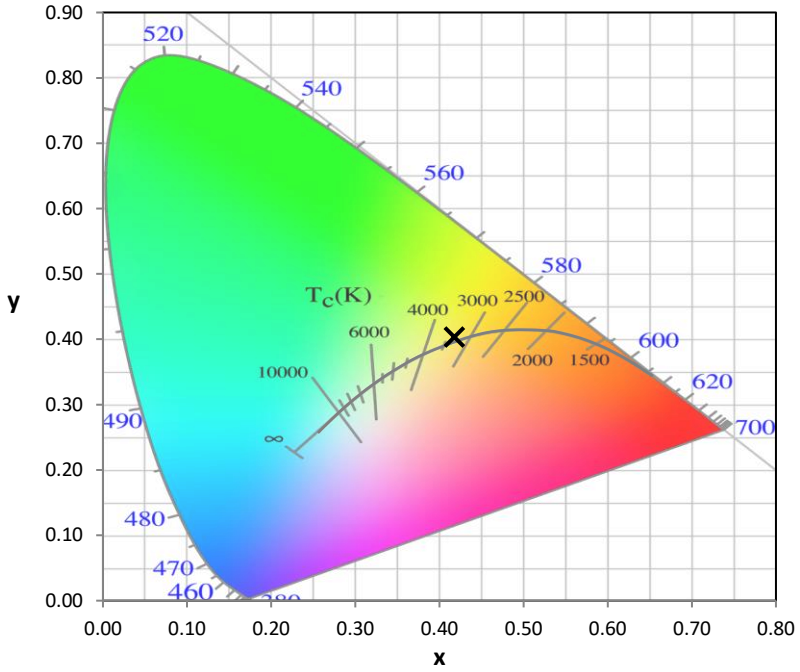
Stabilization Time:	30M
Operation Time:	1H 30M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-4

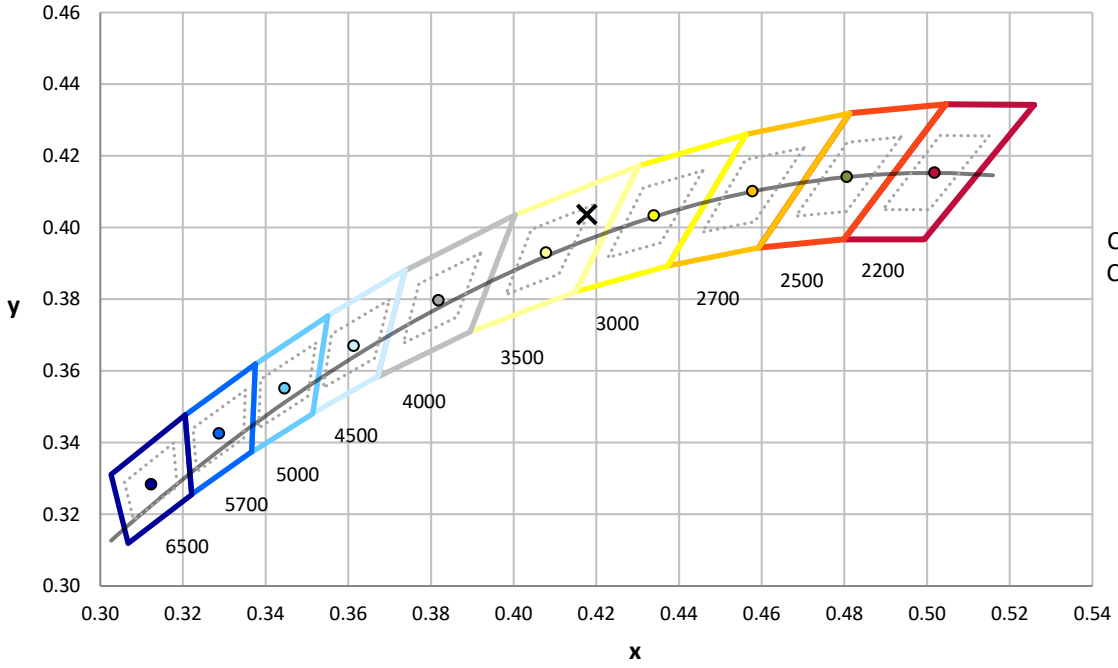
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-176-4

CIE 1931 Chromaticity Diagram



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

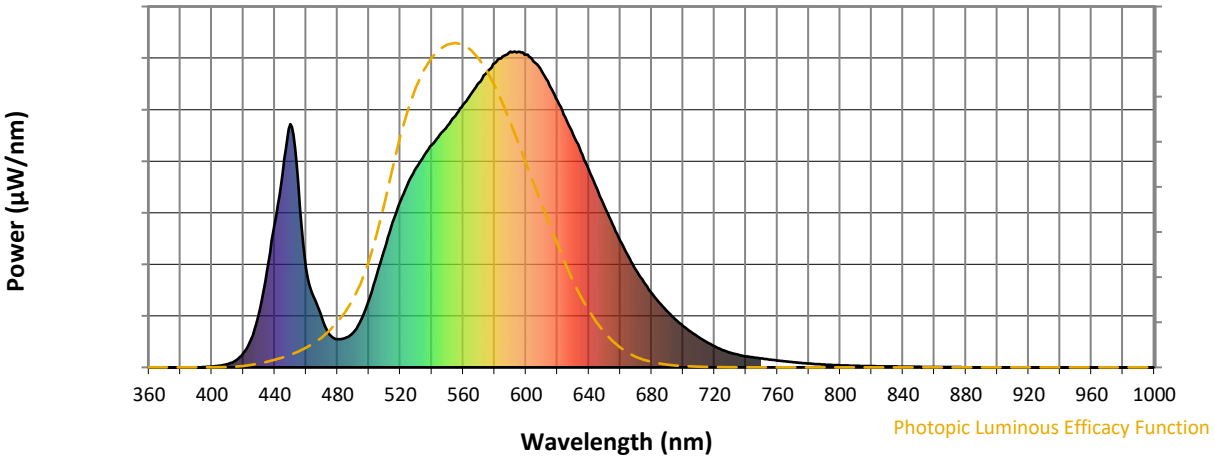


CCT = 3348K
CIE x = 0.4177
CIE y = 0.4036
Duv = 0.0030

Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-4

Photopic Flux vs. Wavelength

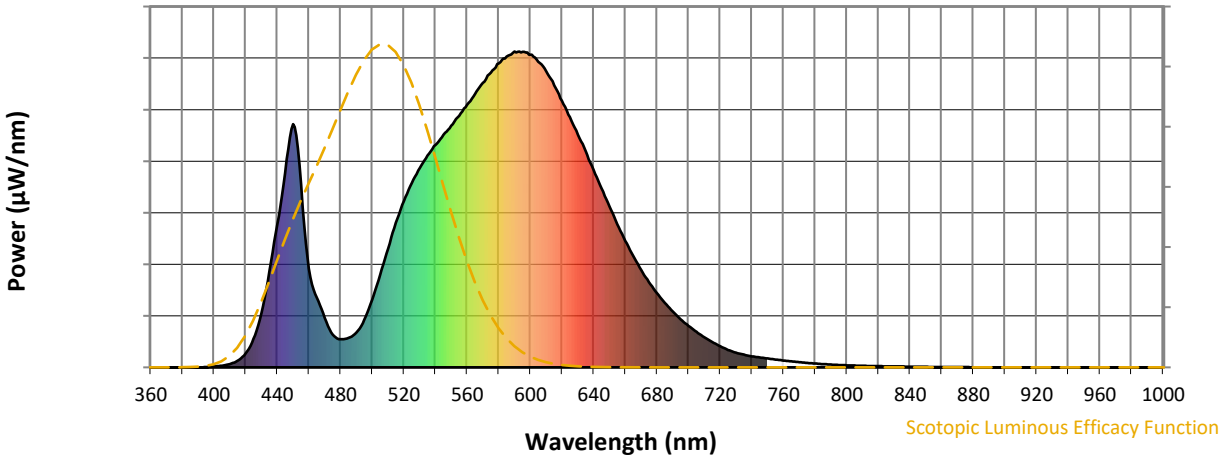


Photopic Lumens: NR

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

Scotopic Flux vs. Wavelength

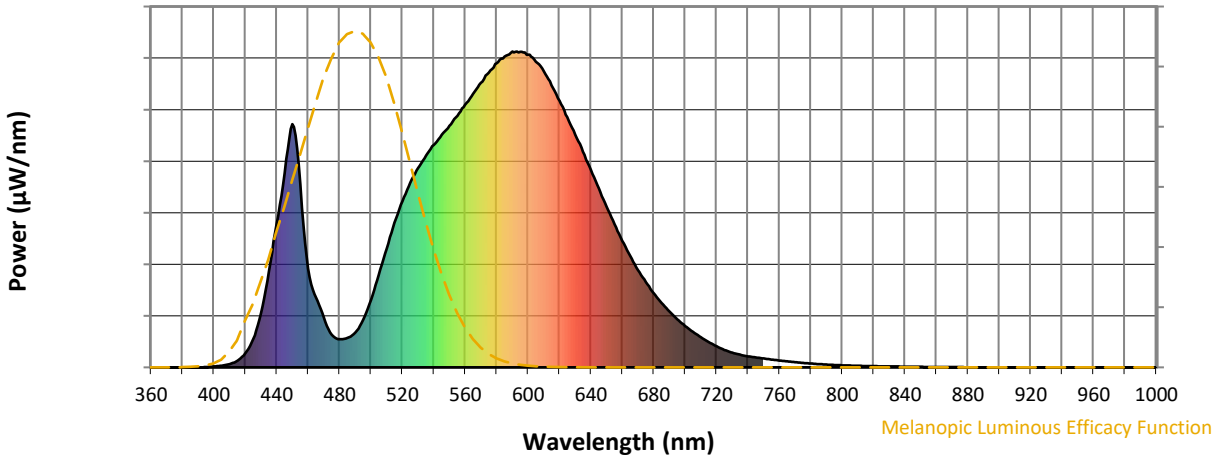


Scotopic Lumens: NR **S/P: 1.31**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.4**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

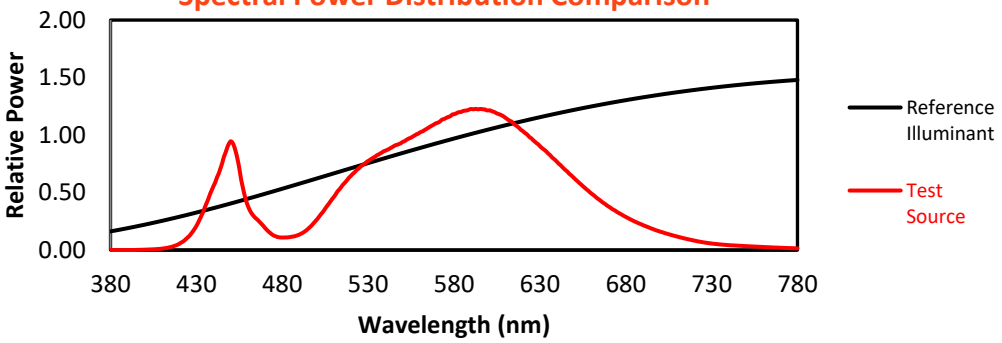
REPORT NUMBER: SP1-2407-176-4

TM-30-18

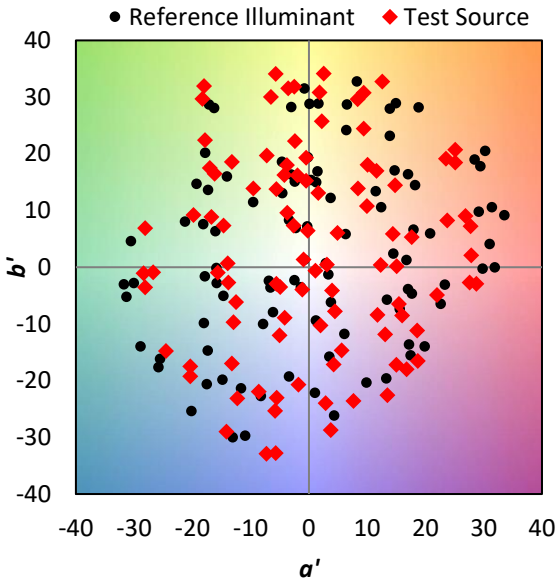
Summary

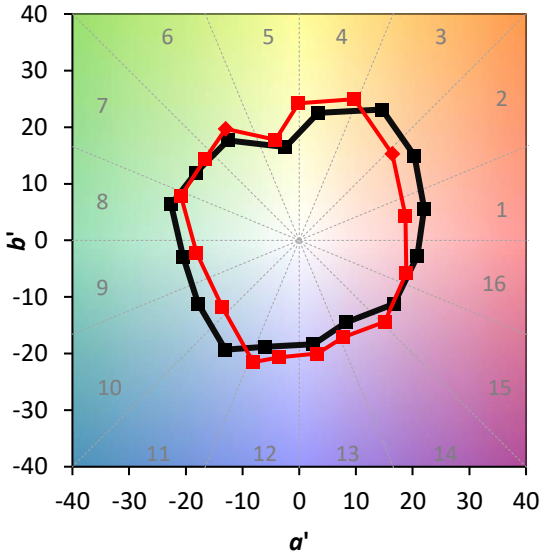
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R_g = 95.8
CIE R_a = 73.4
R_9 = -19.2

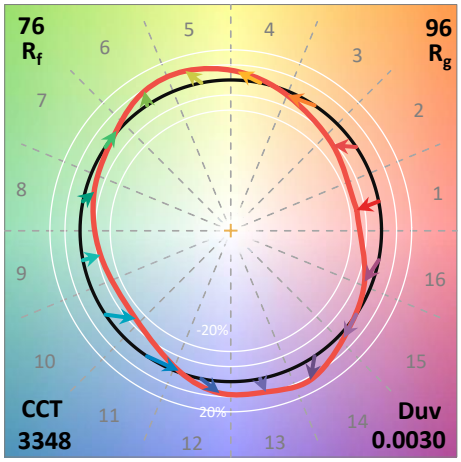
Spectral Power Distribution Comparison

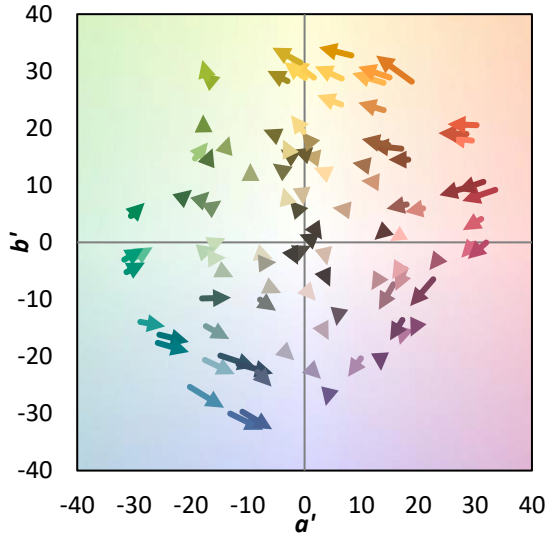


Color Vector Graphics







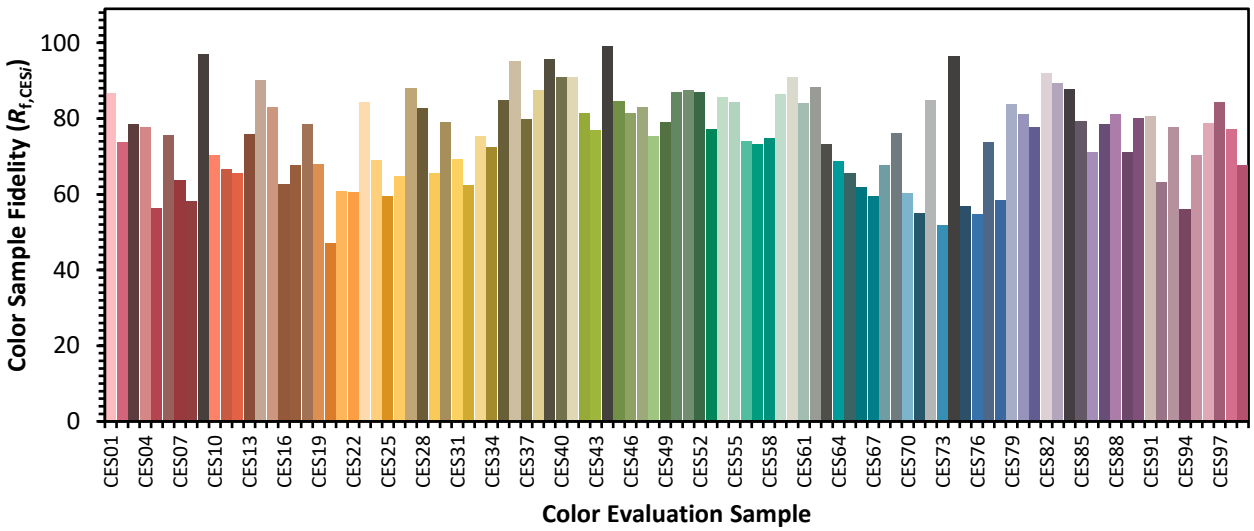


REPORT NUMBER: SP1-2407-176-4

TM-30-18

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

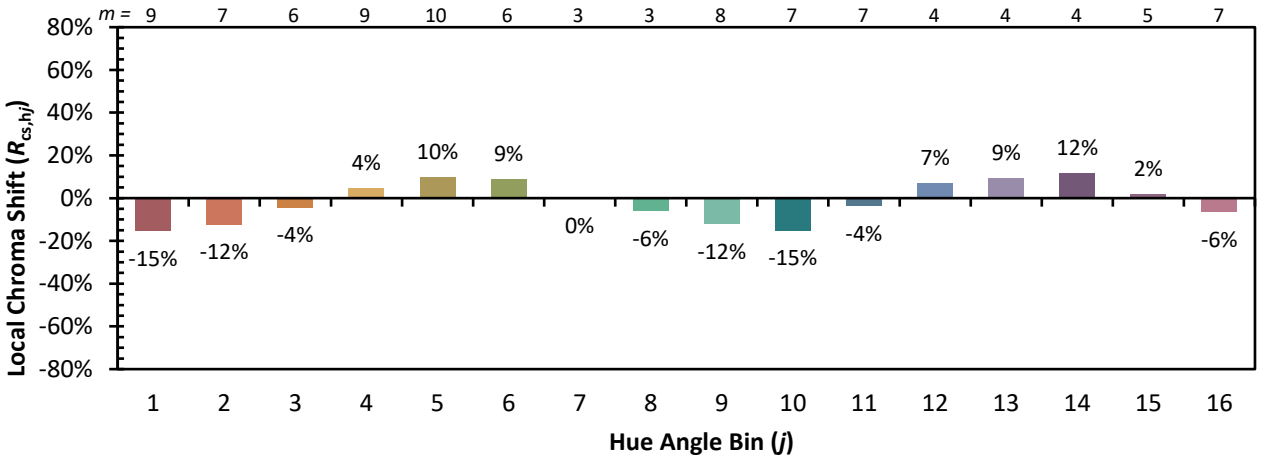
CES01 = 86	CES26 = 65	CES51 = 88	CES76 = 55
CES02 = 62	CES27 = 88	CES52 = 87	CES77 = 74
CES03 = 31	CES28 = 83	CES53 = 77	CES78 = 58
CES04 = 70	CES29 = 66	CES54 = 86	CES79 = 84
CES05 = 48	CES30 = 79	CES55 = 84	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 74	CES81 = 78
CES07 = 41	CES32 = 62	CES57 = 73	CES82 = 92
CES08 = 40	CES33 = 75	CES58 = 75	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 85	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 95	CES61 = 84	CES86 = 71
CES12 = 64	CES37 = 80	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 88	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 71
CES15 = 71	CES40 = 91	CES65 = 66	CES90 = 80
CES16 = 47	CES41 = 91	CES66 = 62	CES91 = 81
CES17 = 50	CES42 = 81	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 77	CES68 = 68	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 85	CES70 = 60	CES95 = 70
CES21 = 87	CES46 = 82	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 83	CES72 = 85	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 77
CES24 = 91	CES49 = 79	CES74 = 96	CES99 = 68
CES25 = 72	CES50 = 87	CES75 = 57	

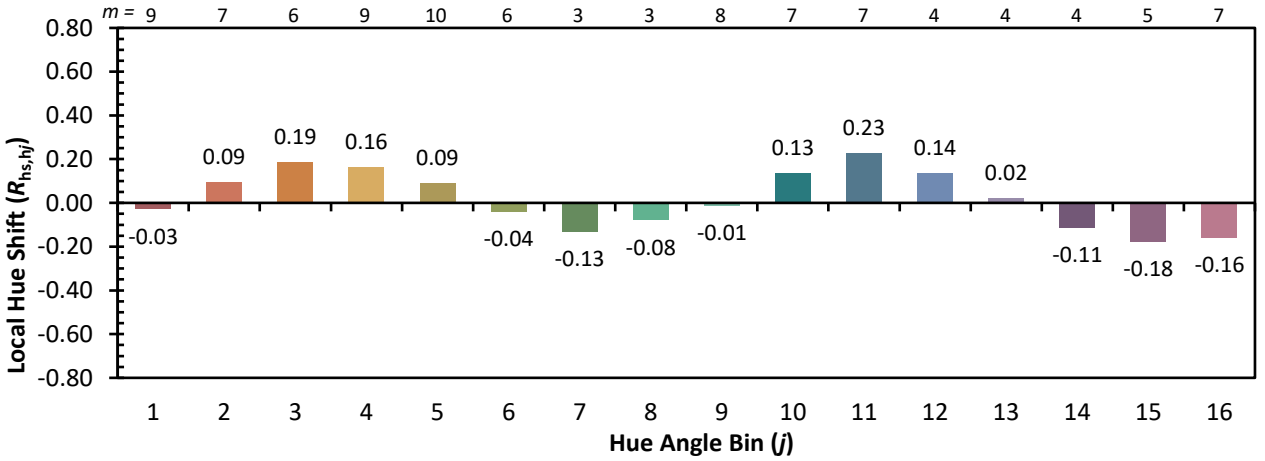


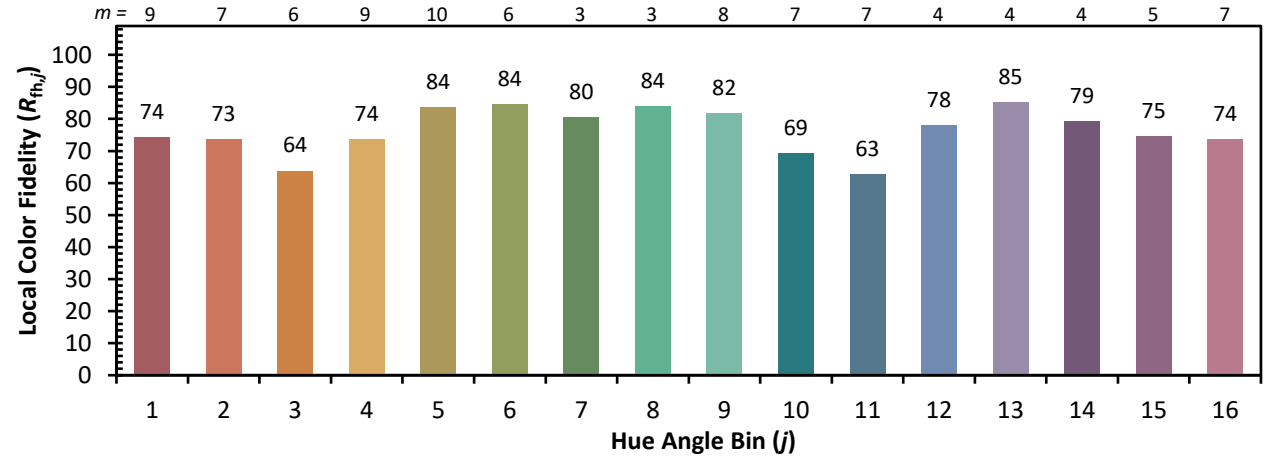
REPORT NUMBER: SP1-2407-176-4

TM-30-18

Color Rendition by Hue-Angle Bin



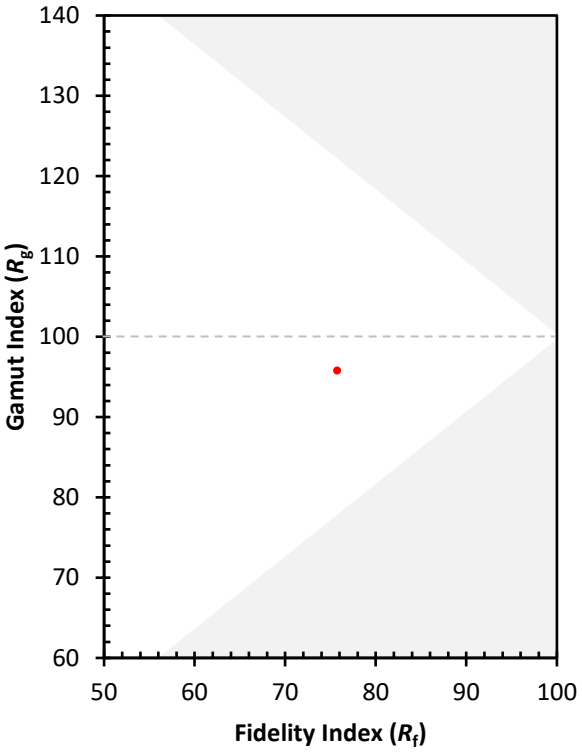


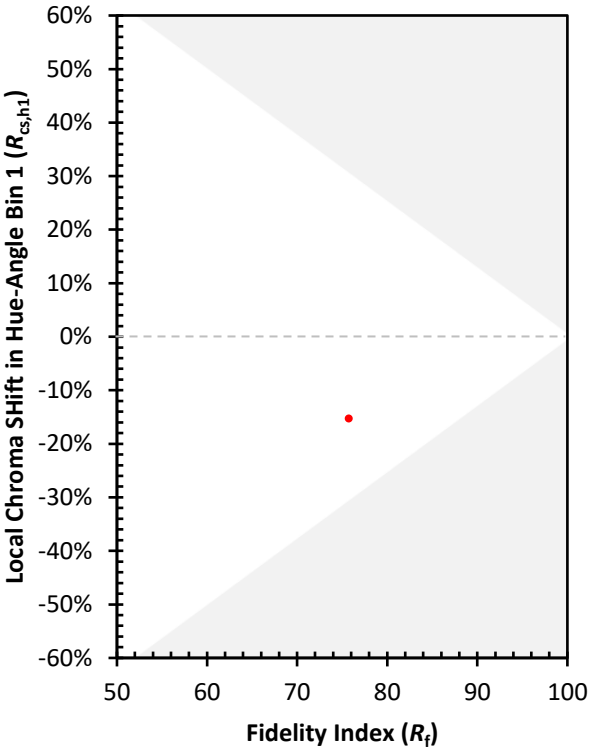


REPORT NUMBER: SP1-2407-176-4

TM-30-18

Measure Comparisons





(END OF REPORT)