

Signify Classified - Internal
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: INVUE

Report Number: P880420

Luminaire Tested: **EMM2-HSN-VA3-750-U-MQ**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P880420
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-VA3-750-U-MQ
Description: EPIC MODERN SHORT HOUSING 3W 70CRI 5000K VISUAL COMFORT FIXTURE w/
TYPE V MEDIUM DISTRIBUTION OPTIC
Light Source: (1) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

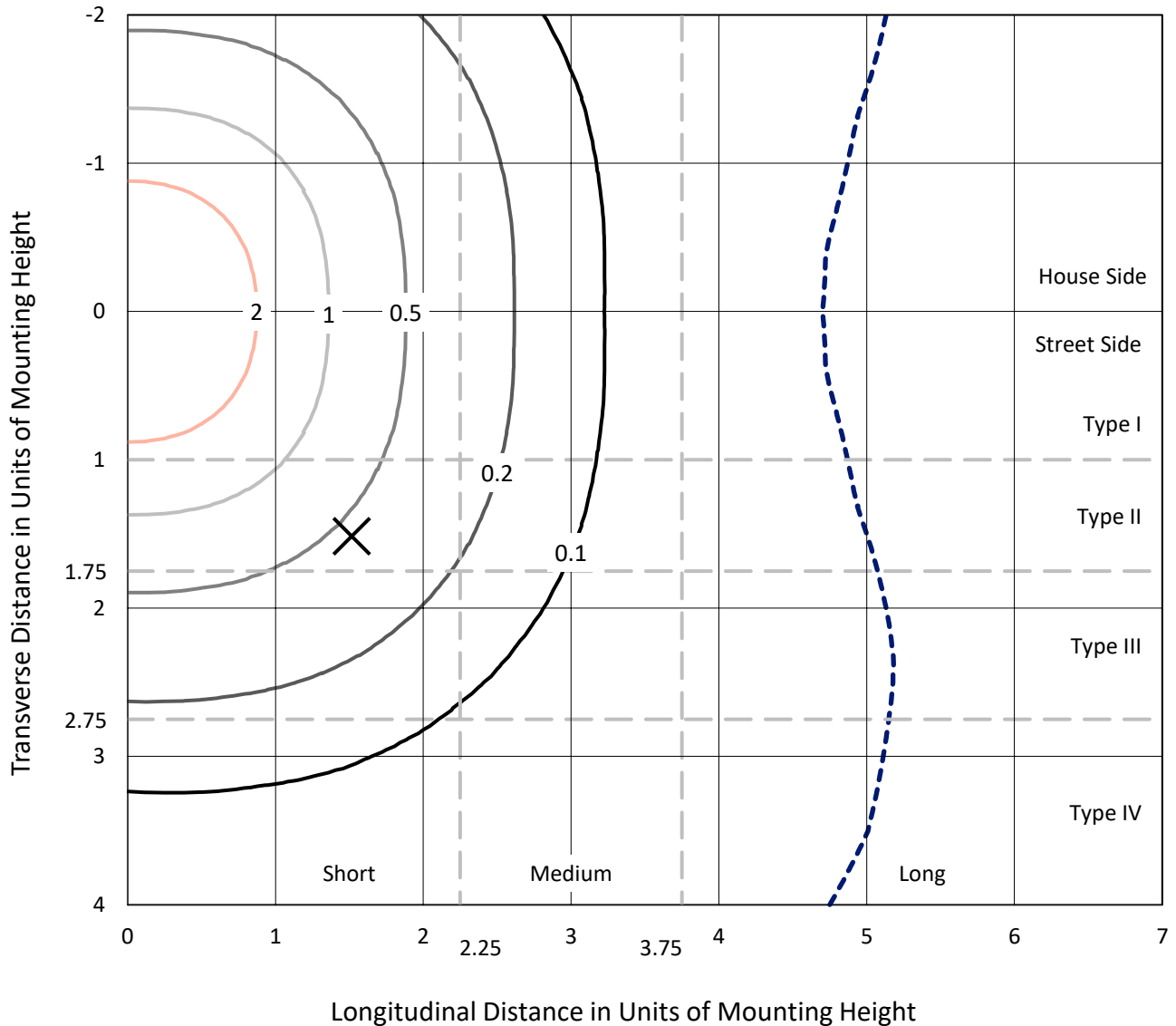
Lumens per Lamp: N/A
Luminaire Lumens: 5872.2 lumens
Efficiency: N/A
Efficacy: 119.8 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G2

Input Watts (W): 49
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 11%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P880420
 CATALOG NUMBER: EMM2-HSN-VA3-750-U-MQ

Iso-Footcandle Lines of Horizontal Illumination

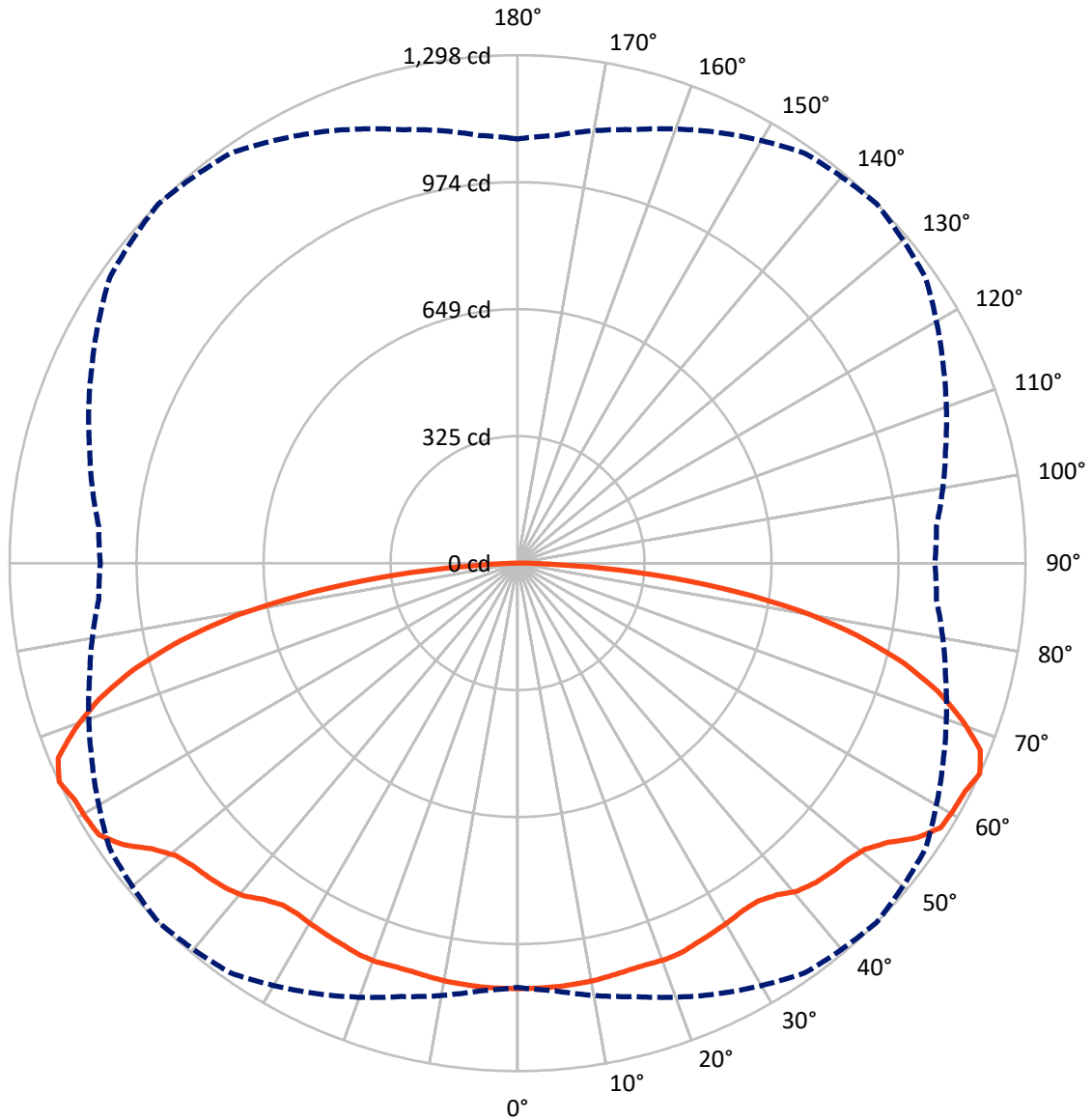
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 4.8 fc
 Type V - Short - N/A

REPORT NUMBER: P880420
CATALOG NUMBER: EMM2-HSN-VA3-750-U-MQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

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CATALOG NUMBER: EMM2-HSN-VA3-750-U-MQ

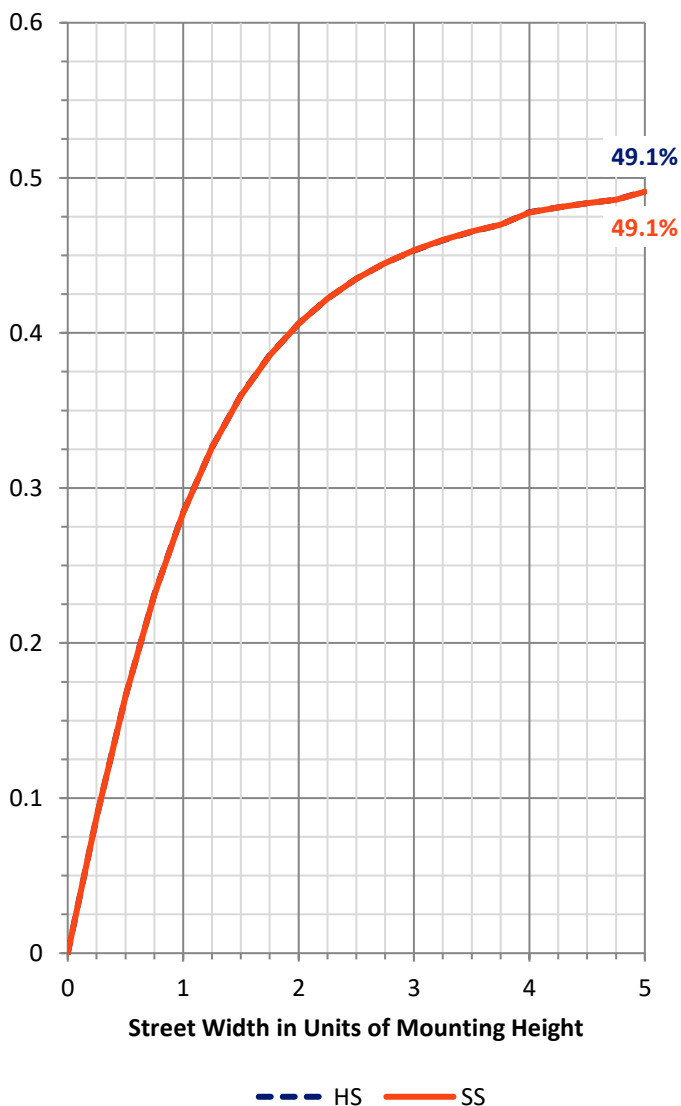
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2936.1	0.0	2936.1
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2936.1	0.0	2936.1
	% Fixture	50.0	0.0	50.0
Total	Lumens	5872.2	0.0	5872.2
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.7	1.8
10°-20°	305.7	5.2
20°-30°	495.0	8.4
30°-40°	665.2	11.3
40°-50°	849.0	14.5
50°-60°	1044.4	17.8
60°-70°	1163.0	19.8
70°-80°	944.0	16.1
80°-90°	302.2	5.1
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°	5872.2	100.0
0°-180°	5872.2	100.0



REPORT NUMBER: P880420

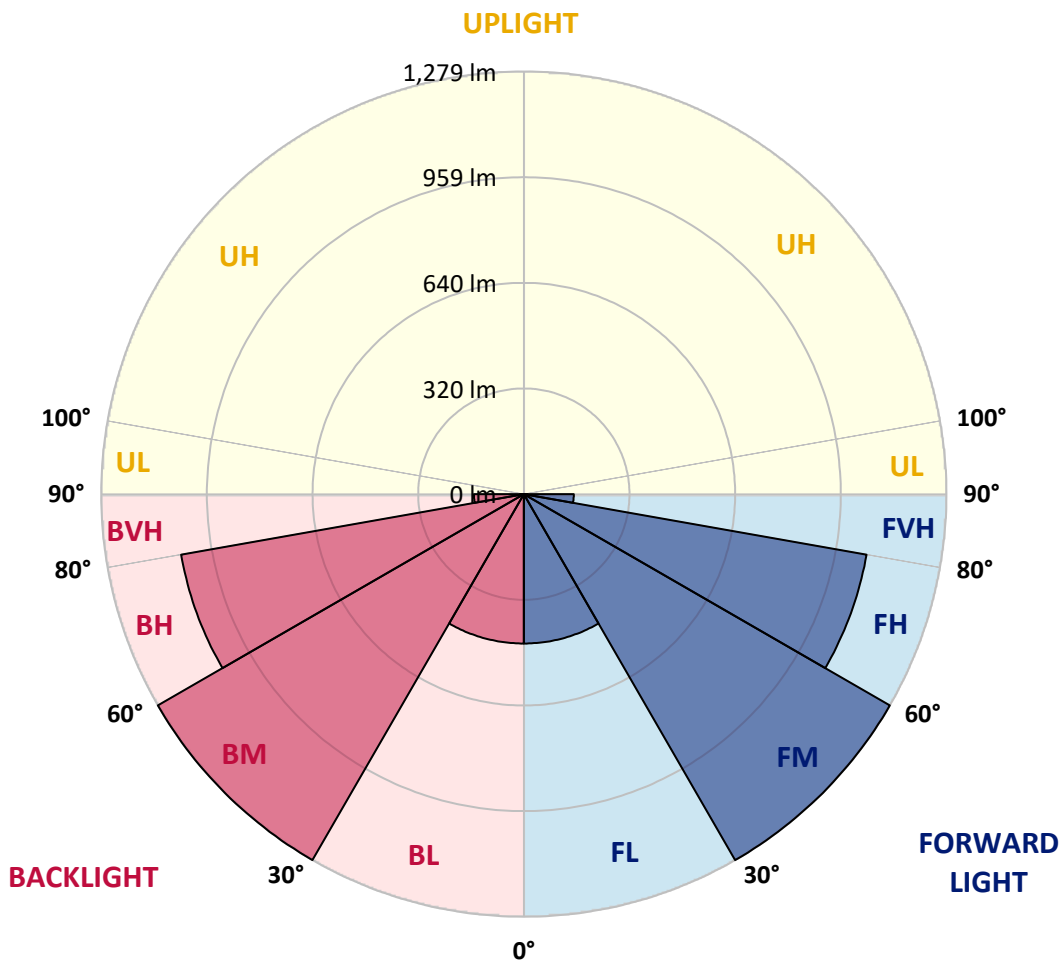
CATALOG NUMBER: EMM2-HSN-VA3-750-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	452.2	7.7			
FM (30°-60°)	1279.3	21.8			
FH (60°-80°)	1053.5	17.9			G1/1800
FVH (80°-90°)	151.1	2.6			G2/225
BL (0°-30°)	452.2	7.7	B1/500		
BM (30°-60°)	1279.3	21.8	B2/2500		
BH (60°-80°)	1053.5	17.9	B3/2500		G1/1800
BVH (80°-90°)	151.1	2.6			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G2

Type V Short





REPORT NUMBER: P880420

CATALOG NUMBER: EMM2-HSN-VA3-750-U-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5
2.5°	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5
5°	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1087.5	1085.9	1087.5	1087.5
7.5°	1085.9	1085.9	1085.9	1085.9	1085.9	1085.9	1085.9	1085.9	1085.9	1085.9	1085.9
10°	1084.3	1084.3	1084.3	1084.3	1084.3	1084.3	1084.3	1084.3	1084.3	1084.3	1084.3
12.5°	1081.1	1081.1	1081.1	1081.1	1081.1	1081.1	1081.1	1081.1	1081.1	1081.1	1081.1
15°	1076.2	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1077.9	1076.2	1076.2
17.5°	1074.6	1074.6	1074.6	1076.2	1077.9	1077.9	1077.9	1076.2	1074.6	1073.0	1073.0
20°	1076.2	1076.2	1076.2	1077.9	1079.5	1081.1	1079.5	1077.9	1074.6	1074.6	1074.6
22.5°	1074.6	1076.2	1076.2	1077.9	1079.5	1079.5	1077.9	1076.2	1074.6	1073.0	1073.0
25°	1069.8	1069.8	1071.4	1073.0	1073.0	1073.0	1073.0	1069.8	1068.2	1066.6	1066.6
27.5°	1063.4	1065.0	1065.0	1066.6	1068.2	1068.2	1066.6	1063.4	1061.8	1060.2	1060.2
30°	1055.3	1055.3	1056.9	1060.2	1061.8	1063.4	1060.2	1056.9	1052.1	1050.5	1050.5
32.5°	1047.3	1048.9	1052.1	1055.3	1056.9	1058.5	1055.3	1052.1	1047.3	1044.1	1042.5
35°	1044.1	1044.1	1048.9	1055.3	1060.2	1060.2	1056.9	1050.5	1044.1	1037.6	1037.6
37.5°	1048.9	1050.5	1056.9	1068.2	1076.2	1076.2	1074.6	1063.4	1052.1	1042.5	1040.9
40°	1060.2	1061.8	1073.0	1087.5	1100.4	1102.0	1095.6	1081.1	1065.0	1053.7	1050.5
42.5°	1066.6	1069.8	1082.7	1100.4	1111.6	1116.5	1108.4	1093.9	1073.0	1058.5	1056.9
45°	1069.8	1073.0	1087.5	1106.8	1121.3	1126.1	1118.1	1098.8	1076.2	1060.2	1058.5
47.5°	1071.4	1074.6	1089.1	1113.2	1129.3	1134.2	1127.7	1105.2	1077.9	1061.8	1060.2
50°	1073.0	1079.5	1097.2	1122.9	1147.0	1150.2	1140.6	1113.2	1084.3	1065.0	1060.2
52.5°	1084.3	1089.1	1114.9	1151.9	1176.0	1185.6	1171.2	1143.8	1100.4	1071.4	1068.2
55°	1111.6	1113.2	1143.8	1190.5	1225.9	1238.7	1216.2	1179.2	1126.1	1097.2	1095.6
57.5°	1119.7	1129.3	1163.1	1216.2	1259.6	1275.7	1256.4	1200.1	1151.9	1113.2	1103.6
60°	1111.6	1119.7	1159.9	1221.0	1267.7	1280.6	1266.1	1213.0	1142.2	1098.8	1090.7
62.5°	1103.6	1113.2	1155.1	1224.2	1269.3	1283.8	1259.6	1214.6	1137.4	1093.9	1085.9
65°	1084.3	1097.2	1147.0	1214.6	1278.9	1298.3	1272.5	1200.1	1132.6	1074.6	1066.6
67.5°	1047.3	1053.7	1108.4	1187.2	1256.4	1275.7	1248.4	1172.8	1092.3	1036.0	1029.6
70°	978.1	992.6	1044.1	1130.9	1196.9	1206.6	1185.6	1110.0	1031.2	971.7	963.6
72.5°	886.4	907.3	963.6	1052.1	1105.2	1124.5	1097.2	1036.0	954.0	886.4	875.2
75°	789.9	801.2	859.1	945.9	1000.6	1018.3	994.2	934.7	836.5	789.9	778.6
77.5°	683.7	691.8	743.2	820.5	871.9	886.4	862.3	814.0	725.5	682.1	677.3
80°	535.7	551.8	600.1	666.0	704.6	727.1	701.4	654.8	590.4	538.9	530.9
82.5°	382.9	394.1	437.6	482.6	519.6	526.1	514.8	469.8	421.5	381.3	371.6
85°	209.1	214.0	241.3	288.0	302.4	313.7	297.6	263.8	239.7	214.0	205.9
87.5°	54.7	56.3	64.3	75.6	82.0	83.7	82.0	72.4	59.5	46.7	51.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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: SP1-2407-176-6

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-30-750-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-750-U-WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-6
 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-30-750-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 4786
 CIE u': 0.2093
 CIE v': 0.4953
 Duv: 0.0066
 CIE x: 0.3533
 CIE y: 0.3716
 CIE z: 0.2751
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 570
 Purity: 17.53512
 Rf: 73
 Rg: 94.6

CRI (Ra):	70.9		
R1:	67.8	R9:	-29.8
R2:	75.1	R10:	40.9
R3:	80.6	R11:	67.4
R4:	71.6	R12:	35.3
R5:	67.8	R13:	68.5
R6:	65.4	R14:	89.0
R7:	82.0	R15:	60.9
R8:	57.0		



Test Conditions

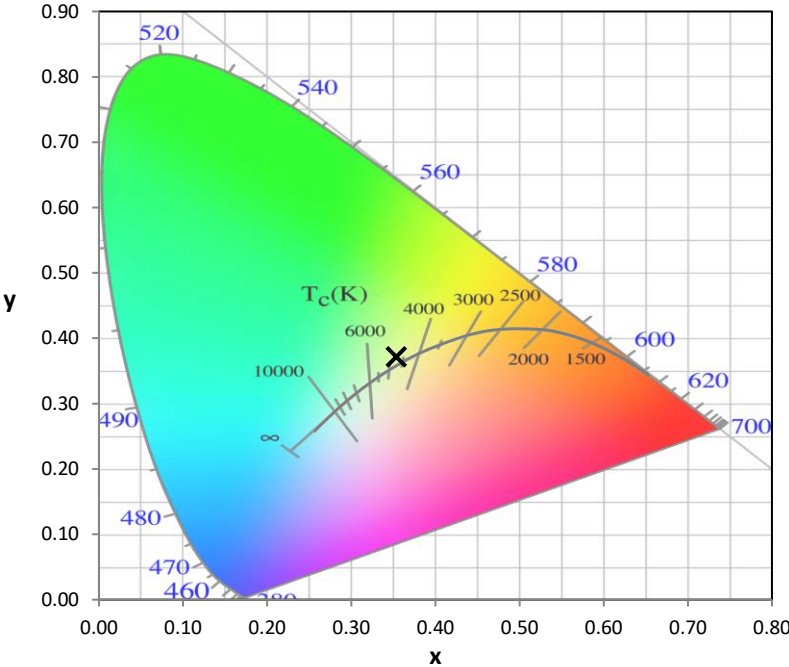
Stabilization Time: 45M
 Operation Time: 1H 45M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-6

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

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CIE 1931 Chromaticity Diagram



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



CCT = 4786K
 CIE x = 0.3533
 CIE y = 0.3716
 Duv = 0.0066

Point lies inside the ANSI 5000K 7-step quadrangle

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Photopic Flux vs. Wavelength

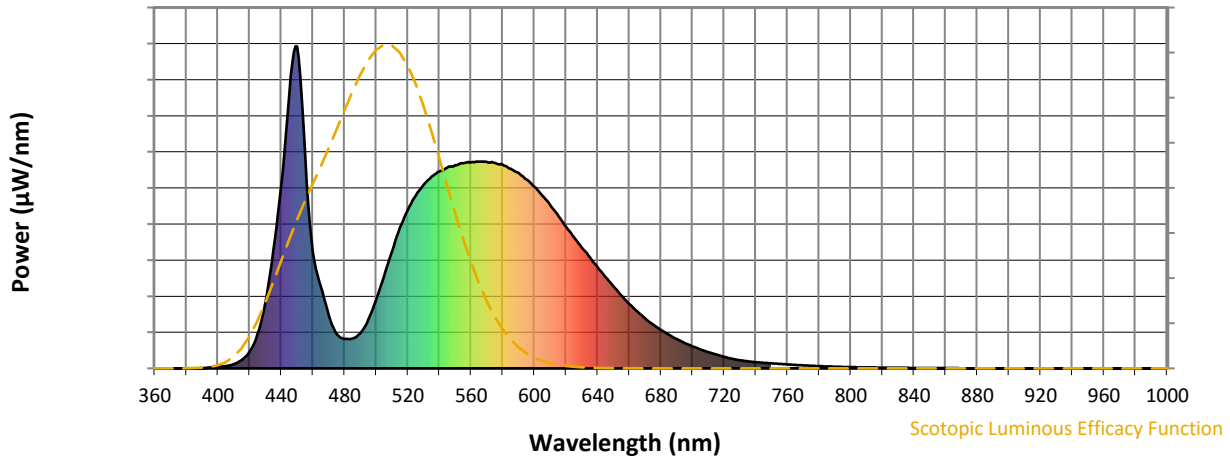


Photopic Lumens: NR

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	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.69

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	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



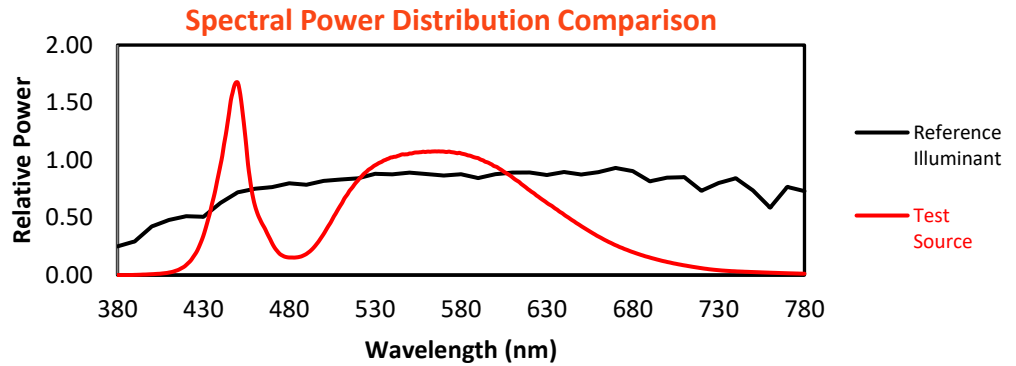
Melanopic Lumens: NR

M/P: 3.36

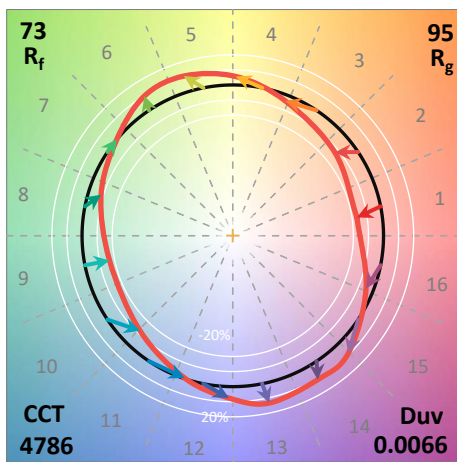
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

Summary

$R_f = 73$
 $R_g = 94.6$
 $CIE R_a = 70.9$
 $R_g = -29.8$

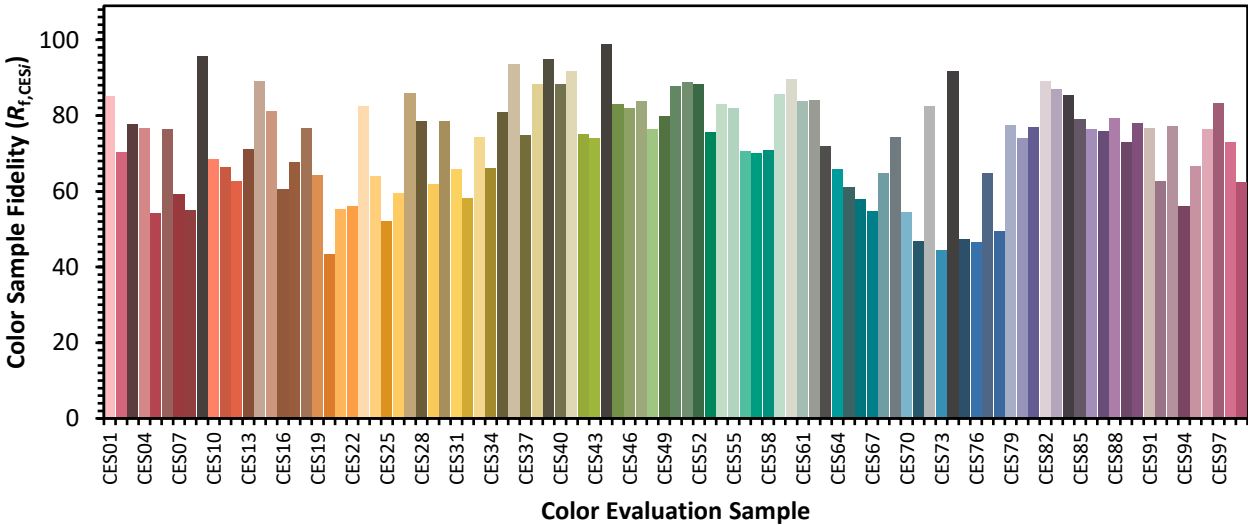


Color Vector Graphics

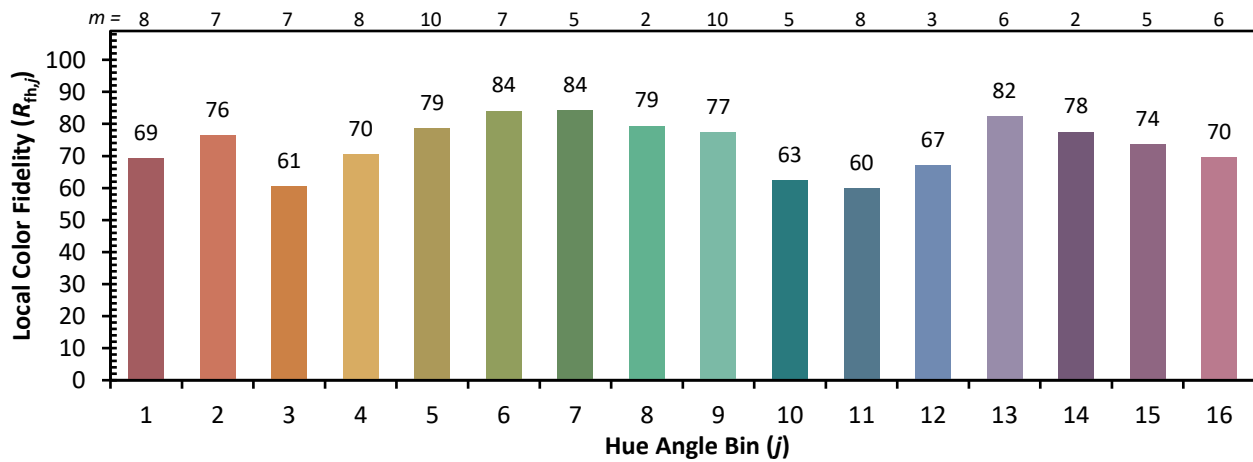
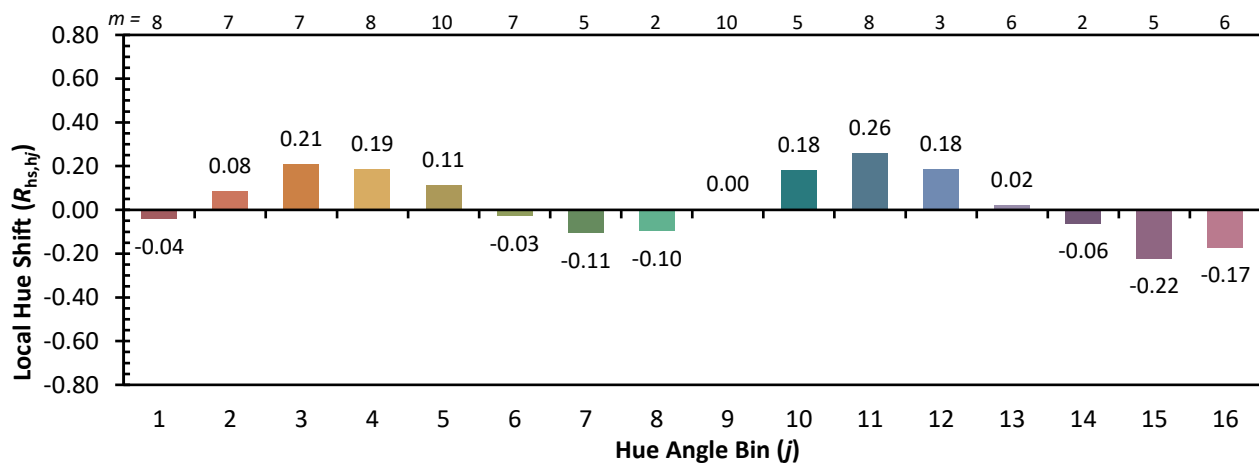
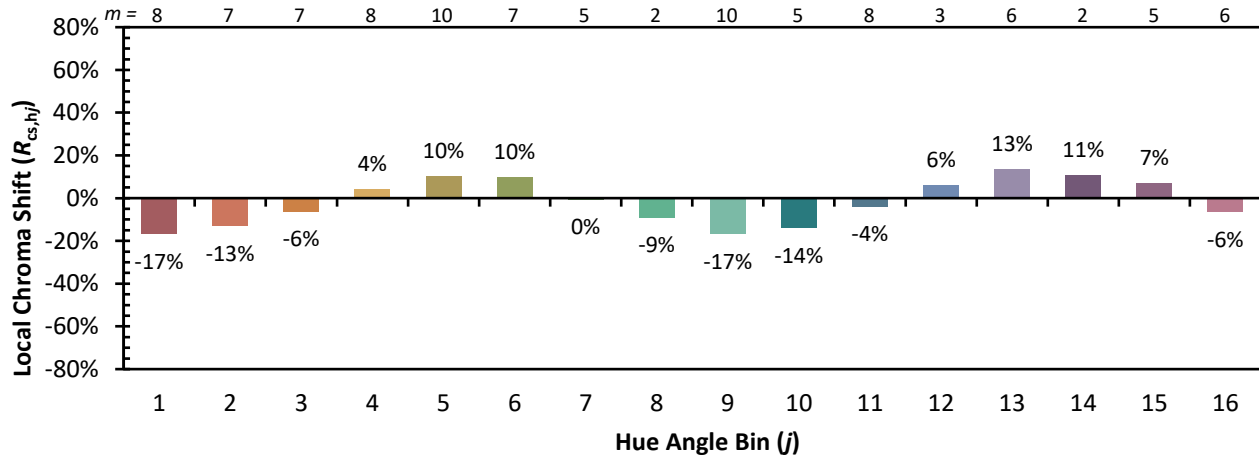


Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 60	CES51 = 89	CES76 = 46
CES02 = 59	CES27 = 86	CES52 = 88	CES77 = 65
CES03 = 30	CES28 = 78	CES53 = 76	CES78 = 49
CES04 = 69	CES29 = 62	CES54 = 83	CES79 = 78
CES05 = 46	CES30 = 79	CES55 = 82	CES80 = 74
CES06 = 50	CES31 = 66	CES56 = 71	CES81 = 77
CES07 = 39	CES32 = 58	CES57 = 70	CES82 = 89
CES08 = 38	CES33 = 74	CES58 = 71	CES83 = 87
CES09 = 29	CES34 = 66	CES59 = 86	CES84 = 86
CES10 = 72	CES35 = 81	CES60 = 90	CES85 = 79
CES11 = 56	CES36 = 94	CES61 = 84	CES86 = 76
CES12 = 61	CES37 = 75	CES62 = 84	CES87 = 76
CES13 = 41	CES38 = 88	CES63 = 72	CES88 = 79
CES14 = 74	CES39 = 95	CES64 = 66	CES89 = 73
CES15 = 70	CES40 = 88	CES65 = 61	CES90 = 78
CES16 = 46	CES41 = 92	CES66 = 58	CES91 = 77
CES17 = 49	CES42 = 75	CES67 = 55	CES92 = 63
CES18 = 55	CES43 = 74	CES68 = 65	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 74	CES94 = 56
CES20 = 64	CES45 = 83	CES70 = 55	CES95 = 67
CES21 = 85	CES46 = 82	CES71 = 47	CES96 = 76
CES22 = 77	CES47 = 84	CES72 = 82	CES97 = 83
CES23 = 91	CES48 = 76	CES73 = 44	CES98 = 73
CES24 = 90	CES49 = 80	CES74 = 92	CES99 = 62
CES25 = 71	CES50 = 88	CES75 = 47	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)