

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: P868710

Luminaire Tested: **EMM2-HTN-SA3B-730-U-T5M**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868710
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HTN-SA3B-730-U-T5M
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 150W 70CRI 3000K
FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source: (30) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

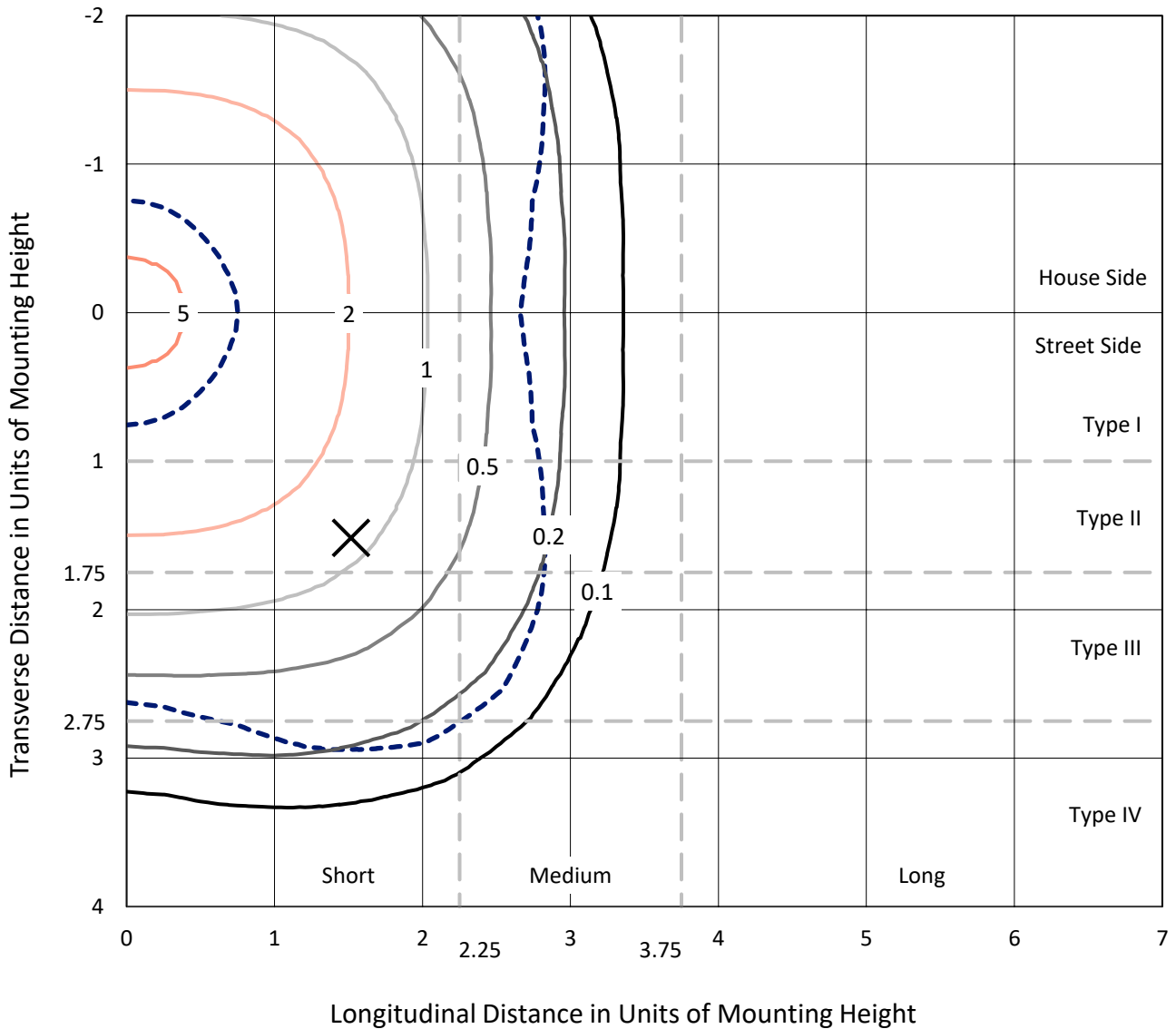
Lumens per Lamp: N/A
Luminaire Lumens: 18674.9 lumens
Efficiency: N/A
Efficacy: 139.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G2

Input Watts (W): 134
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.70%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868710
 CATALOG NUMBER: EMM2-HTN-SA3B-730-U-T5M

Iso-Footcandle Lines of Horizontal Illumination

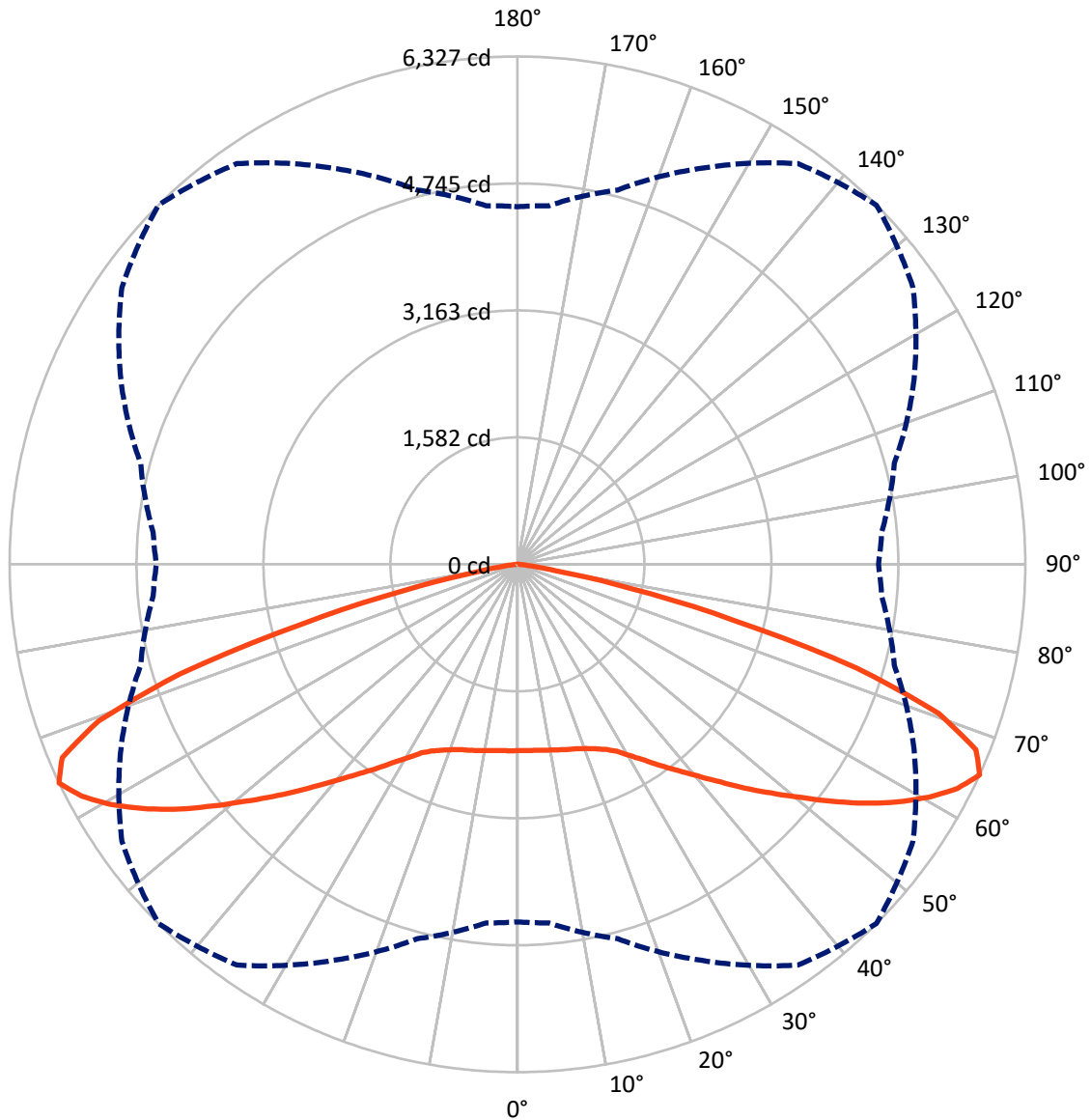
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.8 fc
 Type V - Short - N/A

REPORT NUMBER: P868710
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Luminous Intensity Polar Plot



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

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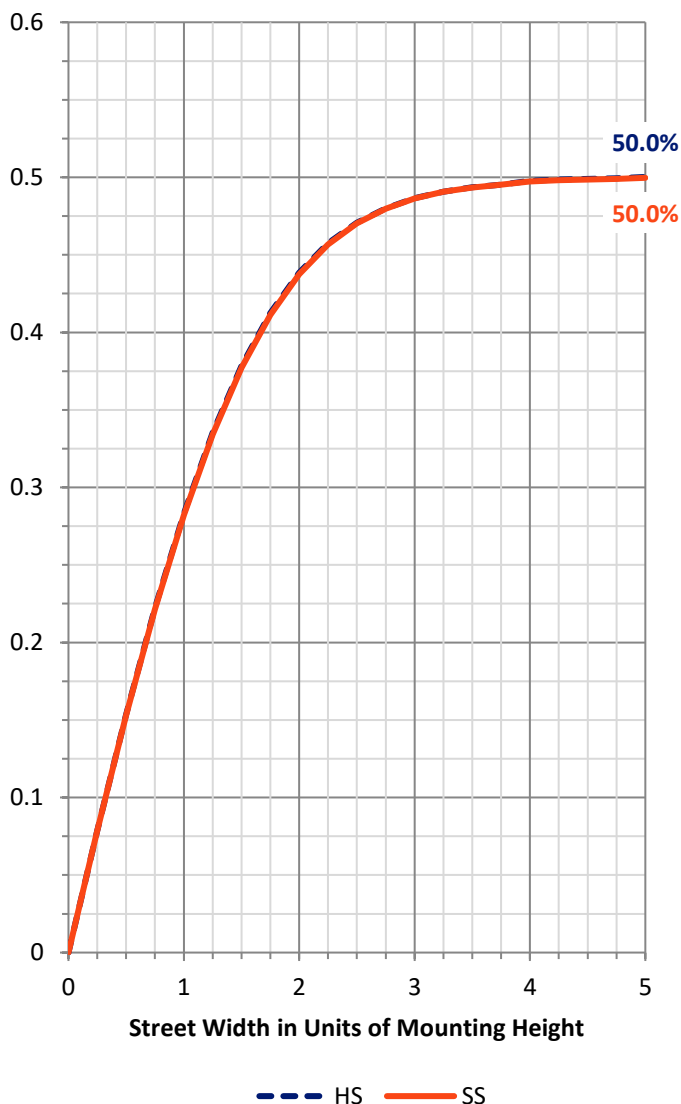
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	9337.4	0.0	9337.4
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	9337.4	0.0	9337.4
	% Fixture	50.0	0.0	50.0
Total	Lumens	18674.9	0.0	18674.9
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	223.1	1.2
10°-20°	679.2	3.6
20°-30°	1194.6	6.4
30°-40°	1932.0	10.3
40°-50°	3009.5	16.1
50°-60°	4400.5	23.6
60°-70°	5067.4	27.1
70°-80°	2069.6	11.1
80°-90°	99.0	0.5
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°	18674.9	100.0
0°-180°	18674.9	100.0

Coefficient of Utilization



REPORT NUMBER: P868710

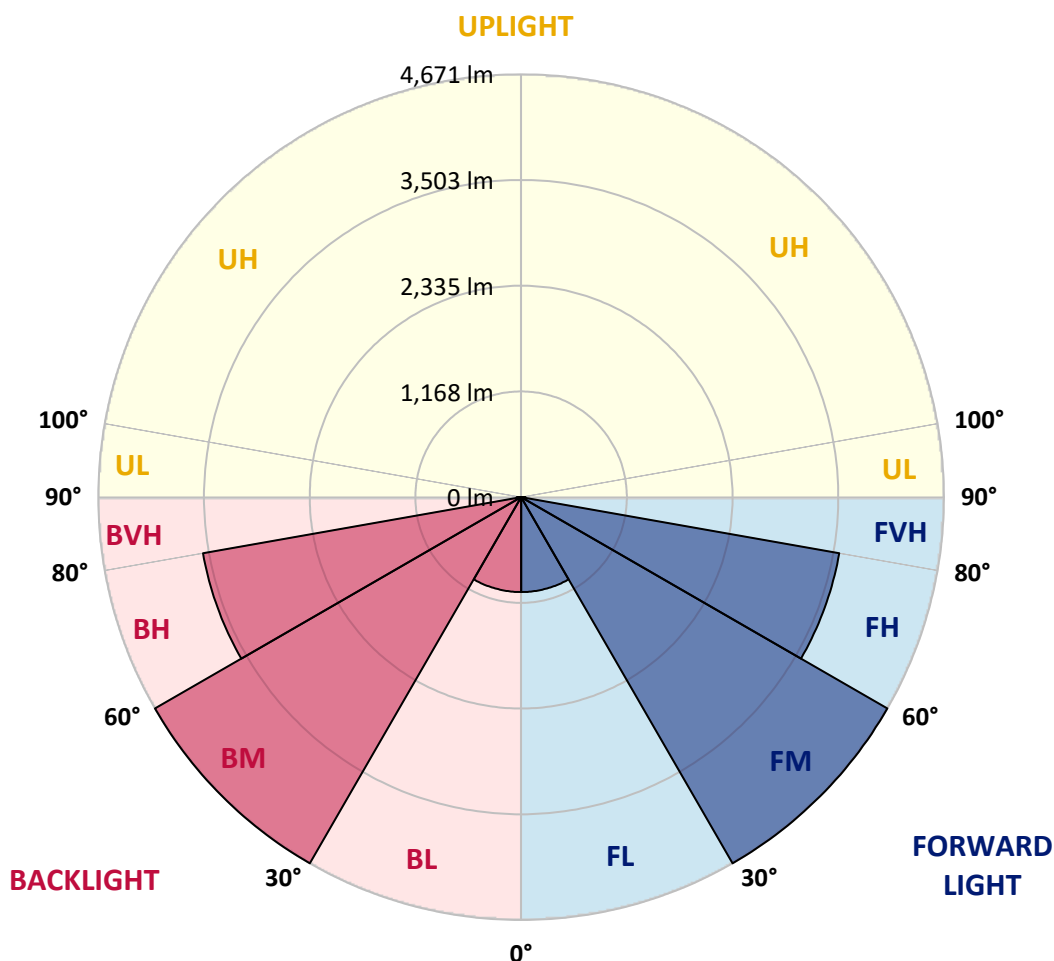
CATALOG NUMBER: EMM2-HTN-SA3B-730-U-T5M

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1048.5	5.6			
FM (30°-60°)	4671.0	25.0			
FH (60°-80°)	3568.5	19.1			G2/5000
FVH (80°-90°)	49.5	0.3			G1/100
BL (0°-30°)	1048.5	5.6	B3/2500		
BM (30°-60°)	4671.0	25.0	B3/5000		
BH (60°-80°)	3568.5	19.1	B4/5000		G2/5000
BVH (80°-90°)	49.5	0.3			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G2

Type V Short





REPORT NUMBER: P868710

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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2320.5	2320.5	2320.5	2320.5	2320.5	2320.5	2320.5	2320.5	2320.5	2320.5	2320.5
2.5°	2327.6	2327.6	2324.0	2324.0	2316.9	2324.0	2320.5	2324.0	2320.5	2320.5	2324.0
5°	2334.8	2334.8	2327.6	2331.2	2324.0	2327.6	2324.0	2331.2	2327.6	2324.0	2331.2
7.5°	2345.6	2345.6	2338.4	2342.0	2334.8	2338.4	2334.8	2342.0	2338.4	2338.4	2342.0
10°	2356.3	2359.9	2352.7	2349.1	2349.1	2352.7	2356.3	2359.9	2356.3	2356.3	2363.5
12.5°	2374.3	2377.8	2370.7	2367.1	2367.1	2370.7	2374.3	2381.4	2370.7	2370.7	2370.7
15°	2392.2	2392.2	2388.6	2385.0	2388.6	2392.2	2392.2	2399.4	2392.2	2385.0	2385.0
17.5°	2399.4	2402.9	2399.4	2406.5	2410.1	2413.7	2417.3	2417.3	2406.5	2402.9	2402.9
20°	2424.5	2428.0	2420.9	2424.5	2435.2	2449.6	2449.6	2449.6	2449.6	2438.8	2438.8
22.5°	2467.5	2471.1	2467.5	2467.5	2481.8	2496.2	2496.2	2507.0	2492.6	2485.4	2485.4
25°	2539.2	2539.2	2535.6	2539.2	2546.4	2553.6	2567.9	2575.1	2575.1	2571.5	2575.1
27.5°	2625.3	2628.9	2625.3	2625.3	2621.7	2636.1	2657.6	2668.3	2671.9	2675.5	2675.5
30°	2740.1	2747.2	2743.7	2747.2	2754.4	2765.2	2772.4	2775.9	2775.9	2768.8	2768.8
32.5°	2865.6	2872.8	2865.6	2883.5	2908.6	2908.6	2901.5	2915.8	2905.0	2897.9	2890.7
35°	3012.6	3012.6	3019.8	3027.0	3062.9	3080.8	3080.8	3073.6	3052.1	3041.3	3048.5
37.5°	3181.2	3184.8	3192.0	3195.6	3227.8	3260.1	3256.5	3238.6	3213.5	3184.8	3184.8
40°	3382.1	3374.9	3378.5	3403.6	3428.7	3468.1	3471.7	3446.6	3403.6	3374.9	3374.9
42.5°	3565.0	3568.5	3582.9	3615.2	3672.6	3704.8	3686.9	3643.9	3597.2	3561.4	3557.8
45°	3758.6	3755.0	3794.5	3862.6	3938.0	3977.4	3948.7	3887.7	3816.0	3769.4	3769.4
47.5°	3955.9	3952.3	4016.9	4128.0	4224.9	4257.2	4228.5	4149.6	4052.7	3984.6	3973.8
50°	4160.3	4174.7	4242.8	4400.6	4526.1	4562.0	4526.1	4422.1	4293.0	4203.4	4189.0
52.5°	4393.4	4404.2	4493.9	4666.0	4820.2	4902.7	4848.9	4694.7	4529.7	4422.1	4407.8
55°	4608.6	4615.8	4744.9	4952.9	5143.0	5254.2	5168.1	4970.9	4762.8	4626.6	4612.2
57.5°	4759.3	4777.2	4942.2	5211.2	5455.0	5584.2	5455.0	5243.4	4967.3	4798.7	4788.0
60°	4856.1	4884.8	5074.9	5412.0	5749.1	5889.0	5756.3	5462.2	5121.5	4902.7	4892.0
62.5°	4805.9	4845.3	5089.2	5530.4	6000.2	6150.8	5978.7	5566.2	5103.6	4827.4	4798.7
65°	4454.4	4483.1	4827.4	5444.3	6093.4	6326.6	6014.5	5451.5	4859.7	4554.8	4497.4
67.5°	3726.4	3776.6	4232.0	5028.2	5892.6	6161.6	5767.1	5039.0	4325.3	3952.3	3887.7
70°	2862.0	2951.7	3450.2	4314.5	5265.0	5569.8	5135.8	4253.6	3414.3	3034.2	2915.8
72.5°	1653.4	1793.2	2524.9	3367.7	4189.0	4418.5	3808.8	2973.2	2266.7	1997.7	1965.4
75°	548.7	598.9	1201.5	1940.3	2671.9	2786.7	2381.4	1875.7	1492.0	1276.8	1287.5
77.5°	269.0	269.0	362.2	710.1	1215.8	1434.6	1301.9	907.4	652.7	494.9	480.6
80°	215.2	215.2	251.1	347.9	408.9	480.6	408.9	297.7	243.9	222.4	233.1
82.5°	104.0	100.4	118.4	168.6	172.2	165.0	154.2	154.2	147.0	136.3	132.7
85°	7.2	7.2	14.3	32.3	53.8	71.7	82.5	78.9	75.3	64.6	71.7
87.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.2	7.2	7.2	7.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-730-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-40-730-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3057
 CIE u': 0.2487
 CIE v': 0.5199
 Duv: -0.0002
 CIE x: 0.4326
 CIE y: 0.4020
 CIE z: 0.1654
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 50.50735
 Rf: 74.6
 Rg: 94

CRI (Ra):	71.7		
R1:	68.1	R9:	-34.8
R2:	82.0	R10:	58.5
R3:	93.5	R11:	62.5
R4:	67.5	R12:	47.5
R5:	67.2	R13:	70.7
R6:	74.9	R14:	96.4
R7:	77.4	R15:	60.0
R8:	43.1		



Test Conditions

Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-4

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: SP1-2407-157-4

CIE 1931 Chromaticity Diagram



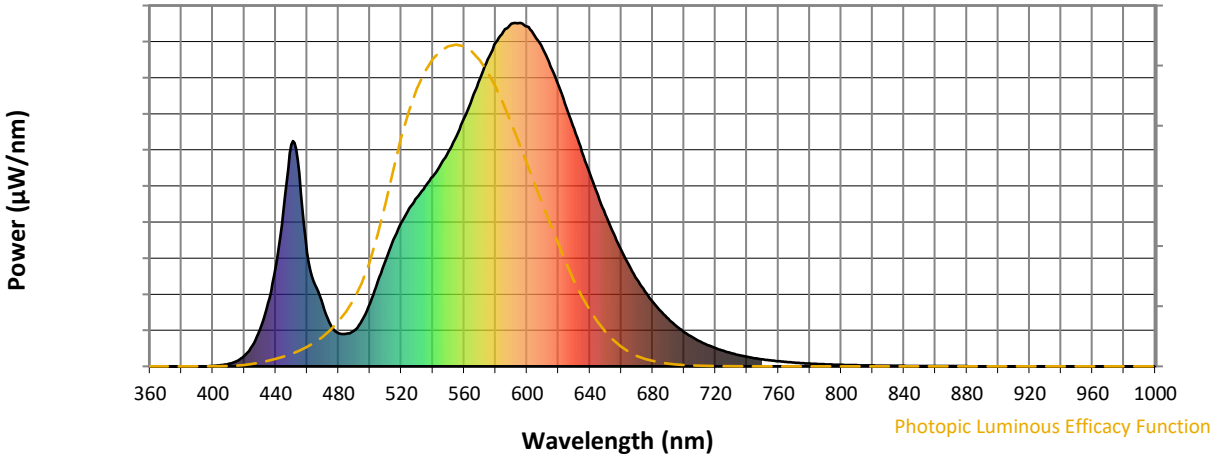
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-4

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength



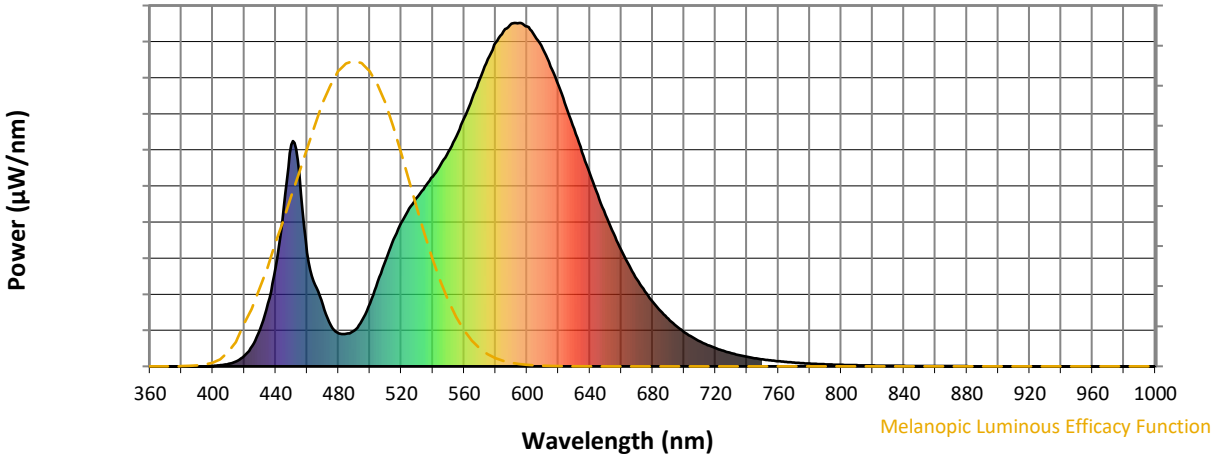
Scotopic Lumens: NR

S/P: 1.23

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



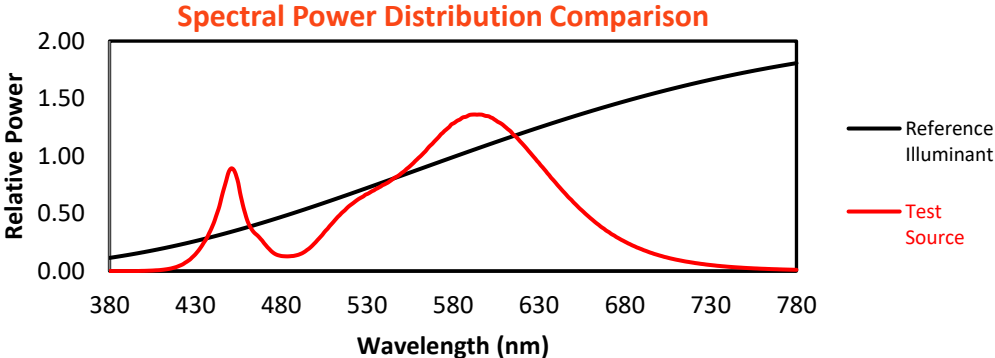
Melanopic Lumens: NR

M/P: 2.27

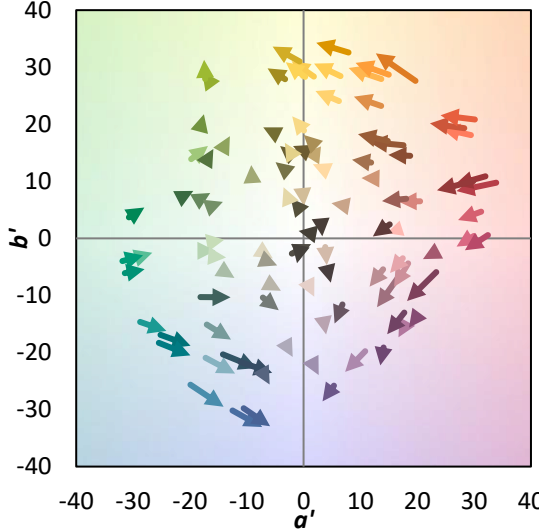
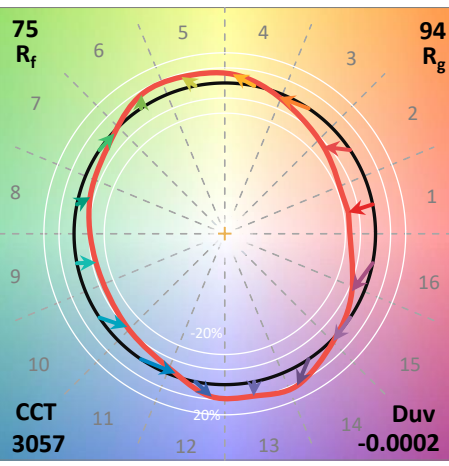
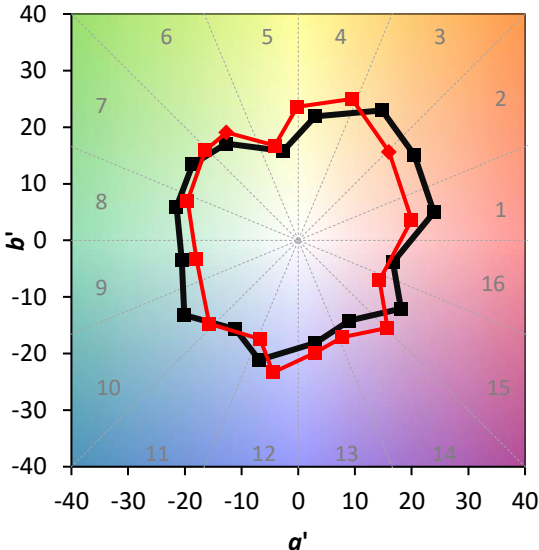
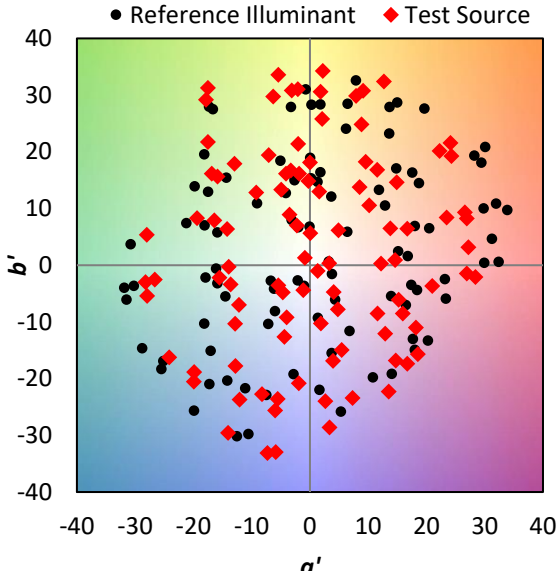
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

Summary

$R_f = 74.6$
 $R_g = 94$
 $CIE R_a = 71.7$
 $R_9 = -34.8$

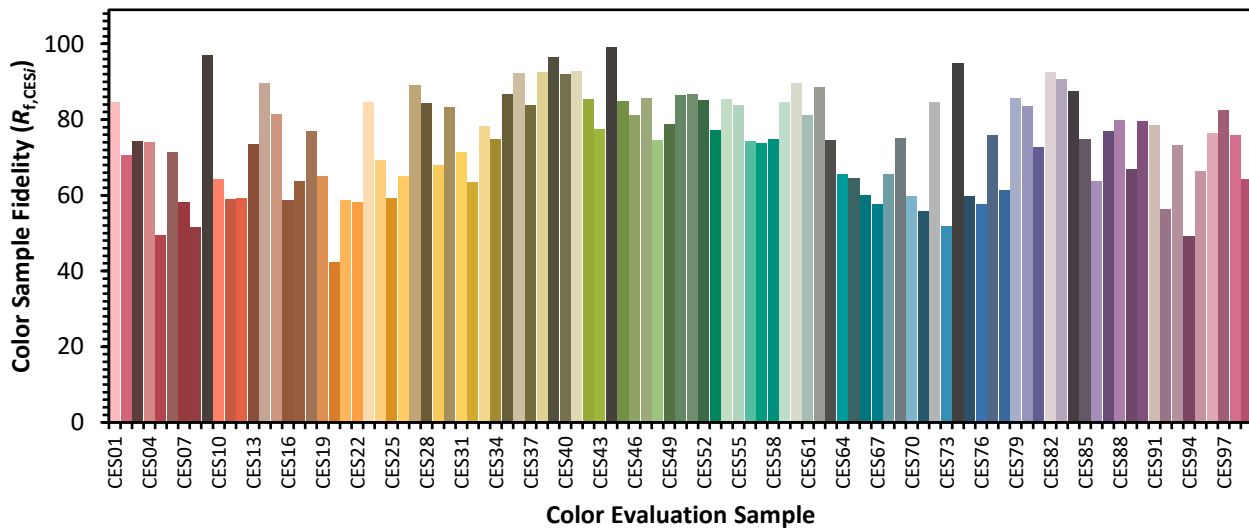


Color Vector Graphics

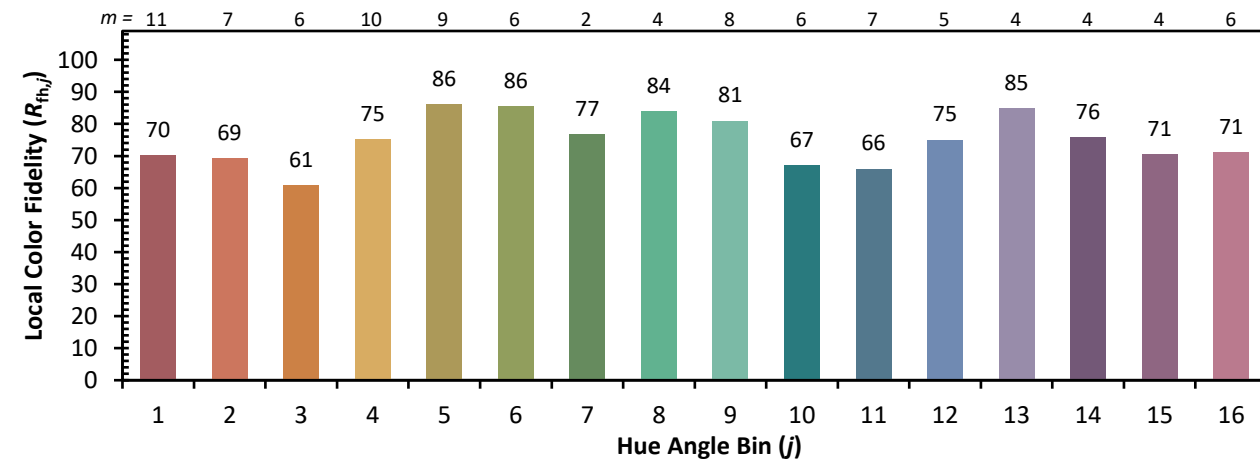


Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 65	CES51 = 87	CES76 = 58
CES02 = 62	CES27 = 89	CES52 = 85	CES77 = 76
CES03 = 31	CES28 = 84	CES53 = 77	CES78 = 61
CES04 = 71	CES29 = 68	CES54 = 85	CES79 = 86
CES05 = 49	CES30 = 83	CES55 = 84	CES80 = 83
CES06 = 51	CES31 = 71	CES56 = 74	CES81 = 73
CES07 = 41	CES32 = 64	CES57 = 74	CES82 = 93
CES08 = 40	CES33 = 78	CES58 = 75	CES83 = 91
CES09 = 29	CES34 = 75	CES59 = 85	CES84 = 88
CES10 = 76	CES35 = 87	CES60 = 90	CES85 = 75
CES11 = 59	CES36 = 92	CES61 = 81	CES86 = 64
CES12 = 65	CES37 = 84	CES62 = 89	CES87 = 77
CES13 = 43	CES38 = 92	CES63 = 75	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 65	CES89 = 67
CES15 = 71	CES40 = 92	CES65 = 64	CES90 = 80
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 78
CES17 = 50	CES42 = 86	CES67 = 58	CES92 = 56
CES18 = 56	CES43 = 77	CES68 = 66	CES93 = 73
CES19 = 73	CES44 = 99	CES69 = 75	CES94 = 49
CES20 = 66	CES45 = 85	CES70 = 60	CES95 = 66
CES21 = 87	CES46 = 81	CES71 = 56	CES96 = 76
CES22 = 79	CES47 = 86	CES72 = 85	CES97 = 82
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 76
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 64
CES25 = 73	CES50 = 86	CES75 = 60	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)