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Photometric Test Report

Relevant Standards

IES LM-79-2019, ANSI C82.77-10-2014, CIE 13.3-1995
CIE 15-2004, ANSI C78.377-2017, IES TM-30-2018

Prepared For

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Catalog Number

FT-24-4-8-3500K-AF-DIM-UNC (FT-22-LS-8CS-AF-DIM-UNV)

Order Number

15184934

Test Number

15184934.07

Test Date

2024-02-26 - 2024-02-27

Prepared By

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Approved By

Jesse Litchfield, Project Handler

The results contained in this report pertain only to the tested sample.

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The device under test emits no detectable uplight, as defined by ANSI/IES LM-75-19.
For the purpose of this report, certain non-zero uplight readings have been assigned a zero value, in accordance with the requirements of ANSI/IES LM-75-19

Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.

Absorption correction was employed for Sphere measurement



Luminaire Description: Recessed 2 x 4 Lumen/Wattage selectable, CCT selectable, LED Troffer w/center frosted acrylic lens.
Lamp: 224 LEDs
Mounting: Recessed
Ballast/Driver: ISTAR ISC-045W-105DDSM-ADJ33

Luminaire



Luminaire Characteristics

Luminous Length: 47.00 in.
Luminous Width: 23.00 in.

Summary of Results

Integrating Sphere

Luminous Flux: 4200 Lumens
Efficacy: 153.17 lm/w
CCT: 3472 K
CRI (Ra): 81.4

Distribution

Total Luminaire Output: 4111 Lumens
Luminaire Efficacy: 150.5 lm/w
Maximum Candela: 1383 Candela

Electrical Data at 120 VAC

Test Temperature: 25.0 °C
Voltage: 120.1 VAC
Current: 0.2294 A
Power: 27.42 W
Power Factor: 0.995
Frequency: 60 Hz
Current THD: 4.61 %

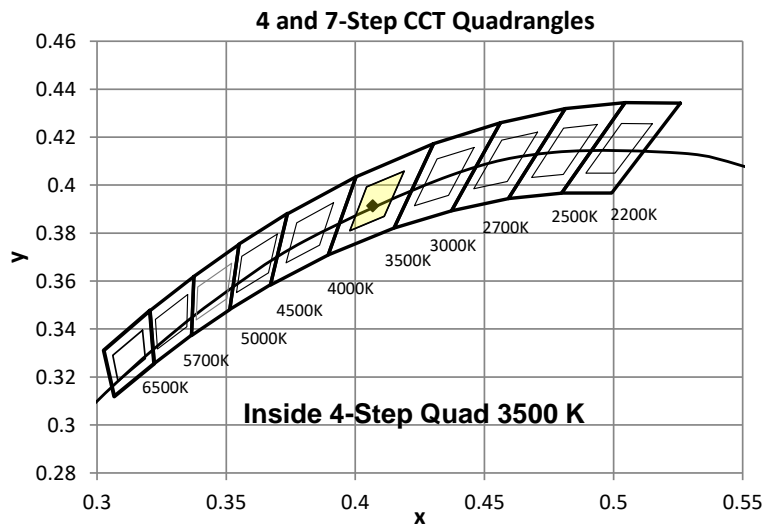
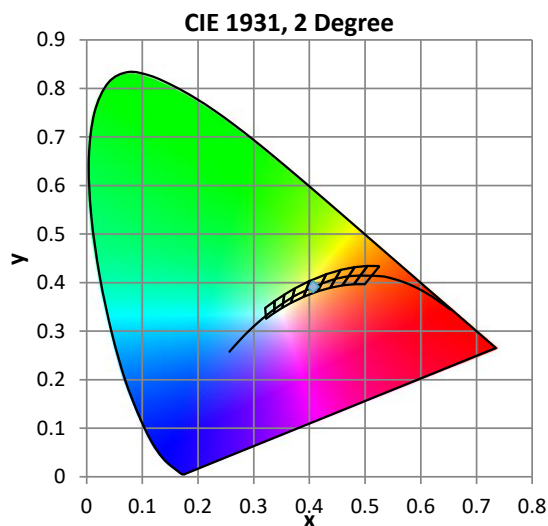
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.0 °C	120.1 VAC	0.2294 A	27.42 W	0.995	60 Hz	4.61 %

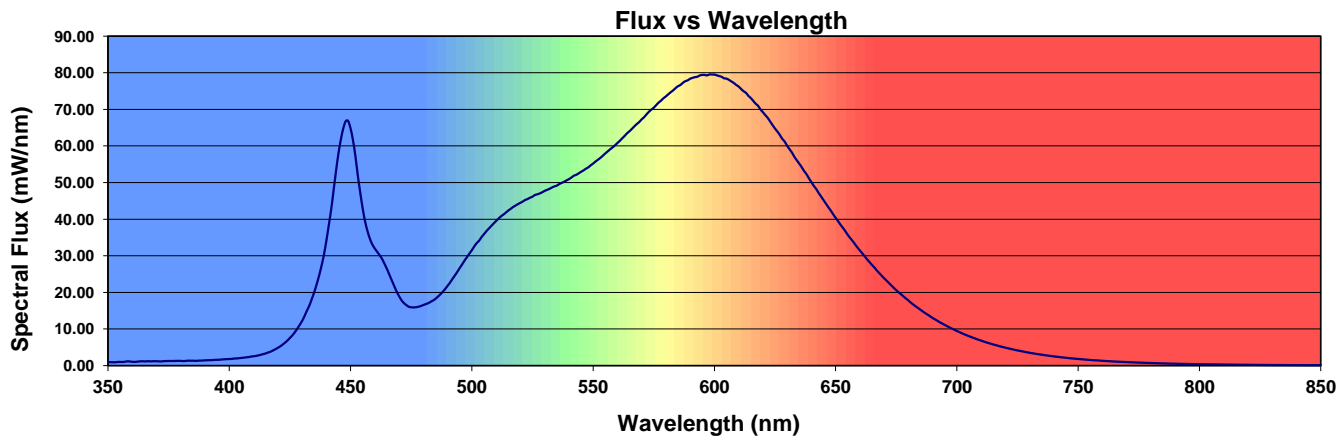
Summary of Results

Total Output:	4200 Lumens	Chromaticity (x):	0.4067
Efficacy:	153.2 lm/w	Chromaticity (y):	0.3914
CCT:	3472 K	Chromaticity (u'):	0.2364
CRI (Ra):	81.4	Chromaticity (v'):	0.5118
CRI (R9):	-0.9	TM-30 Rf:	83
Peak Wavelength:	605 nm	TM-30 Rg:	96
Dominant Wavelength:	555 nm	TM-30 Rcs,h1:	-13%
S/P Ratio:	1.5	Duv:	0.0000
M/P Ratio:	0.58	WELL Building Standard v2	



Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81.4	79.3	88.4	95.7	80.5	79.8	85.1	83.4	58.8	-0.9	73.5	80.0	66.7	81.3	97.9	71.5



Distribution - Goniophotometer

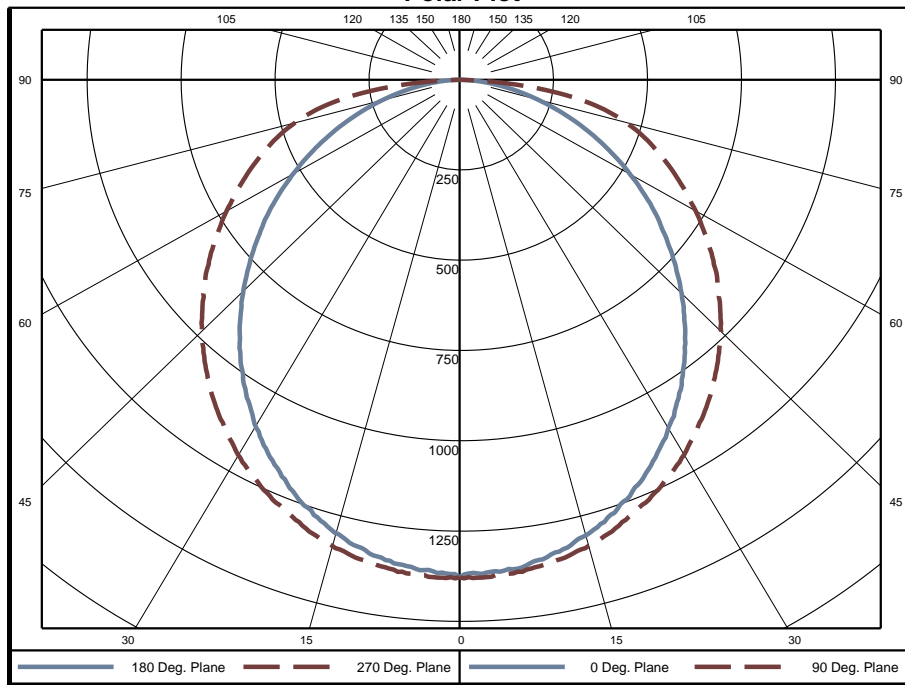
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.2 °C	119.7 VAC	0.2294 A	27.31 W	0.995	60 Hz	4.53 %

Summary of Results

Spacing Criteria	Total Lumen Output:	4111 Lumens
0-180: 1.21	Luminaire Efficacy:	150.5 lm/w
90-270: 1.29	Maximum Candela:	1383 Candela
Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)		
Crosswise: 18	Endwise: 21.2	

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	32.9	0.8%	60-65	281.4	6.8%	120-125	0	0.0%
5-10	97.5	2.4%	65-70	245.5	6.0%	125-130	0	0.0%
10-15	158.6	3.9%	70-75	205.8	5.0%	130-135	0	0.0%
15-20	214.1	5.2%	75-80	160.6	3.9%	135-140	0	0.0%
20-25	261.6	6.4%	80-85	102.8	2.5%	140-145	0	0.0%
25-30	300.6	7.3%	85-90	27.3	0.7%	145-150	0	0.0%
30-35	328.9	8.0%	90-95	0	0.0%	150-155	0	0.0%
35-40	346.3	8.4%	95-100	0	0.0%	155-160	0	0.0%
40-45	352.8	8.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	348.4	8.5%	105-110	0	0.0%	165-170	0	0.0%
50-55	334.3	8.1%	110-115	0	0.0%	170-175	0	0.0%
55-60	311.7	7.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1741	42.3%
0-60	3088	75.1%
0-90	4111	100.0%
90-180	0	0.0%

Candela Tabulation

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
	0	1378	1378	1378	1378	1378	1378	1378	1378	1378	1378	1378	1378	1378	1378	1378
	5	1365	1373	1372	1375	1375	1374	1369	1373	1360	1373	1369	1374	1375	1375	1372
	10	1343	1351	1350	1360	1360	1357	1351	1349	1338	1349	1351	1357	1360	1360	1350
	15	1306	1318	1319	1336	1336	1330	1317	1315	1298	1315	1317	1330	1336	1336	1319
	20	1252	1266	1274	1293	1297	1289	1271	1264	1245	1264	1271	1289	1297	1293	1274
	25	1191	1205	1218	1243	1254	1241	1217	1200	1177	1200	1217	1241	1254	1243	1218
	30	1113	1131	1152	1188	1199	1181	1153	1128	1102	1128	1153	1181	1199	1188	1152
	35	1032	1047	1078	1119	1134	1115	1077	1043	1015	1043	1077	1115	1134	1119	1078
	40	935	959	996	1044	1062	1039	995	952	919	952	995	1039	1062	1044	996
	45	837	862	909	966	987	960	905	854	822	854	905	960	987	966	909
	50	735	762	819	879	902	874	815	754	720	754	815	874	902	879	819
	55	632	663	725	790	816	788	719	655	619	655	719	788	816	790	725
	60	525	559	633	700	728	698	627	551	513	551	627	698	728	700	633
	65	422	456	538	613	640	609	533	450	410	450	533	609	640	613	538
	70	319	359	446	526	554	521	440	353	308	353	440	521	554	526	446
	75	220	266	359	436	461	433	355	260	212	260	355	433	461	436	359
	80	133	183	267	322	337	319	263	178	124	178	263	319	337	322	267
	85	58	101	143	151	149	146	137	96	53	96	137	146	149	151	143
	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Luminance (cd/m²)

Horizontal Angle (Degrees)

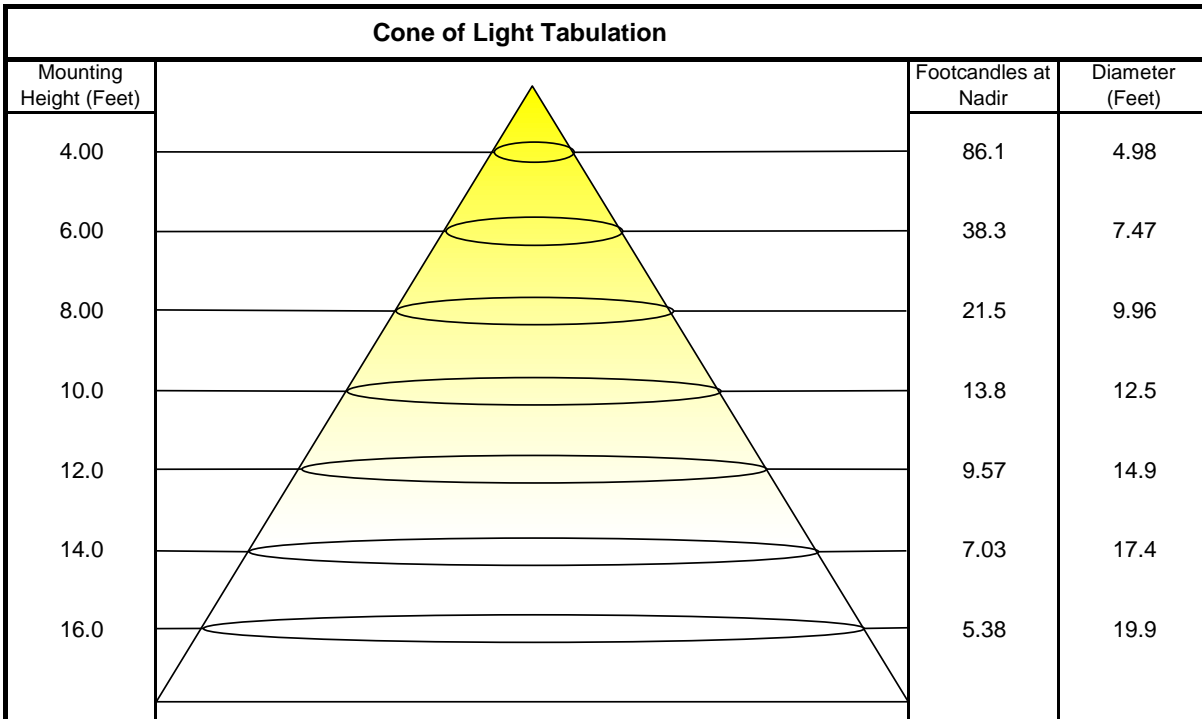
Vertical Angle (Degrees)	0	45	90
	0	1976	1976
	45	1697	1843
	55	1581	1813
	65	1430	1824
	75	1219	1987
	85	956	2347



Coefficients of Utilization - Zonal Cavity Method

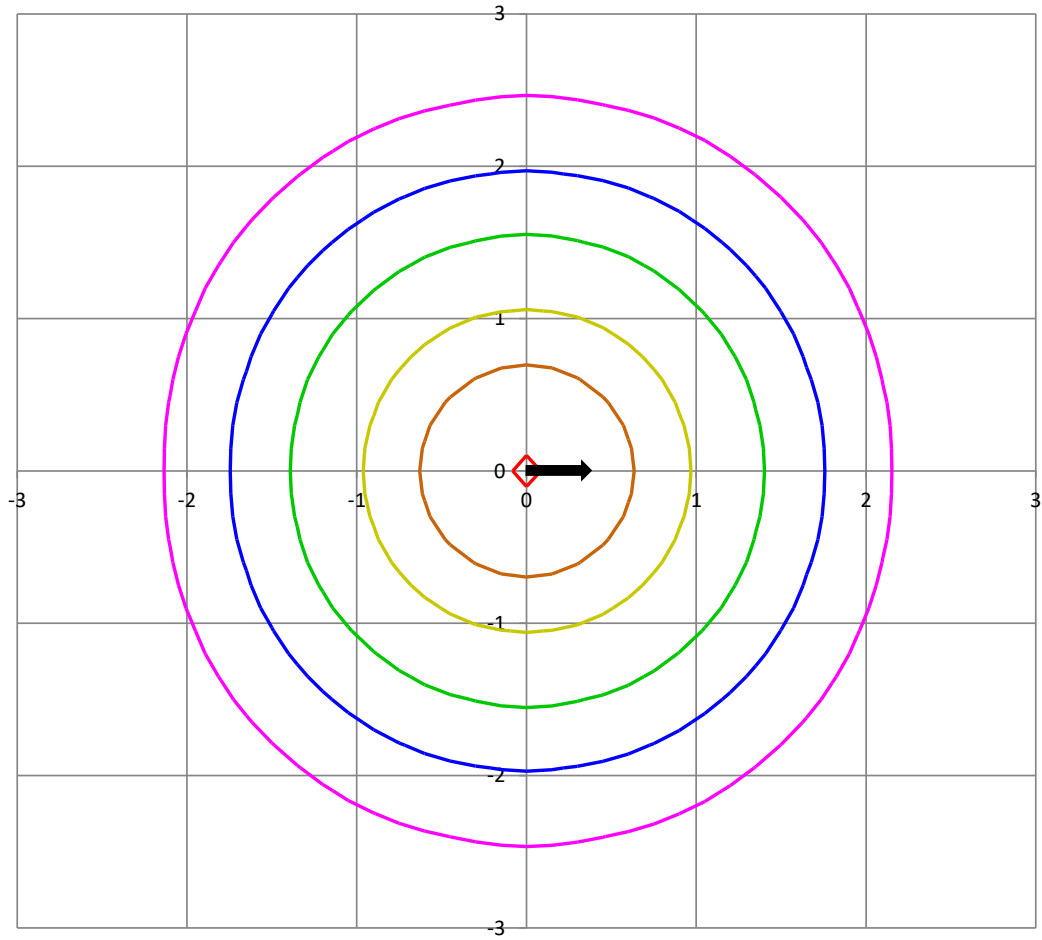
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	98	94	105	100	96	92	96	93	89	92	89	87	88	86	84	82
2	98	89	82	75	95	87	80	75	83	78	73	80	75	71	77	73	70	67
3	89	78	69	62	86	76	68	62	73	66	61	70	64	59	68	63	58	56
4	81	69	59	52	79	67	59	52	65	57	51	62	56	51	60	55	50	48
5	74	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43	41
6	69	55	46	39	67	54	45	39	52	44	39	51	44	38	49	43	38	36
7	64	50	41	35	62	49	41	34	47	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	39	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1378 Candela
Central Cone Intensity:	1376 Candela
Beam Flux:	2913.1 Lumens
Beam Angle (0-180):	103.6 Degrees
Beam Angle (90-270):	124.3 Degrees
Field Angle (0-180):	158.9 Degrees
Field Angle (90-270):	170.5 Degrees

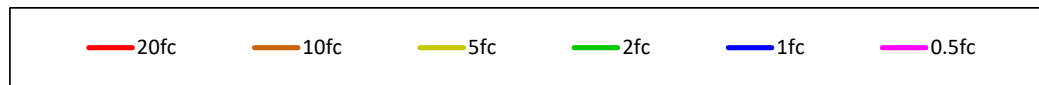


ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height



ANSI/IES TM-30-18 Color Rendition Report

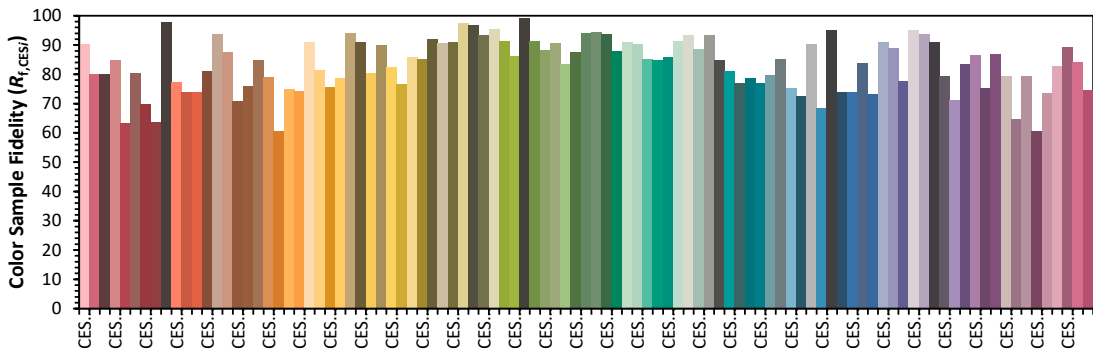
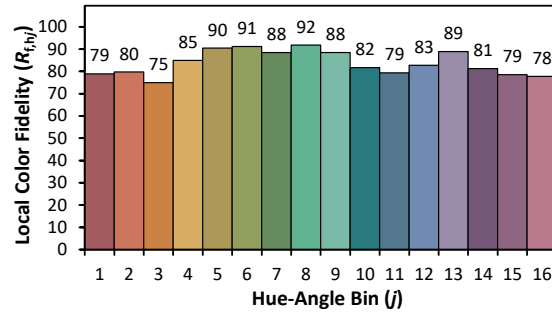
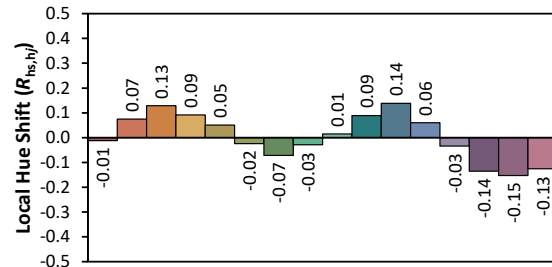
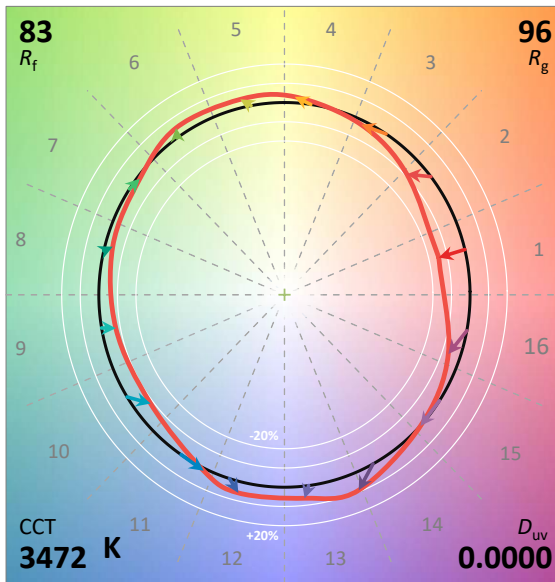
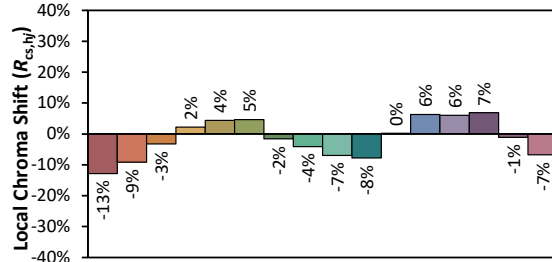
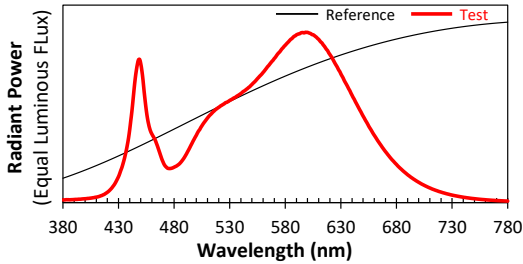
Date: 2024-02-27

Manufacturer:

H E Williams Inc

Model:

FT-24-4-8-3500K-AF-DIM-UNC (FT-22-LS-8CS-AF-DIM-UNV)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4067

y 0.3914

u' 0.2364

v' 0.5118

CIE 13.3-1995
(CRI)

R_a 81

R_g -1

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.