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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-22-2-8-3500K-AF-DIM-UNC (FT-22-LS-8CS-AF-DIM-UNV)

Order Number

15184934

Test Number

15184934.04

Test Date

2024-02-27 - 2024-02-28

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 2 Lumen/Wattage selectable, CCT selectable, LED Troffer w/center frosted acrylic lens.
Lamp: 112 LEDs
Mounting: Recessed
Ballast/Driver: ISTAR ISC-030W-070DDSM-ADJ33

Luminaire



Luminaire Characteristics

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

Summary of Results

Integrating Sphere

Luminous Flux: 2566 Lumens
Efficacy: 146.59 lm/w
CCT: 3496 K
CRI (Ra): 81.0

Distribution

Total Luminaire Output: 2534 Lumens
Luminaire Efficacy: 144.7 lm/w
Maximum Candela: 868 Candela

Electrical Data at 120 VAC

Test Temperature: 24.5 °C
Voltage: 120.1 VAC
Current: 0.1475 A
Power: 17.50 W
Power Factor: 0.989
Frequency: 60 Hz
Current THD: 8.69 %

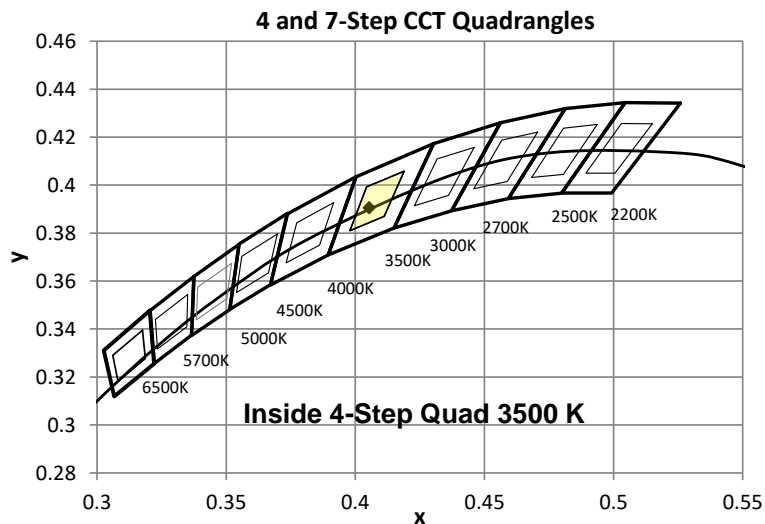
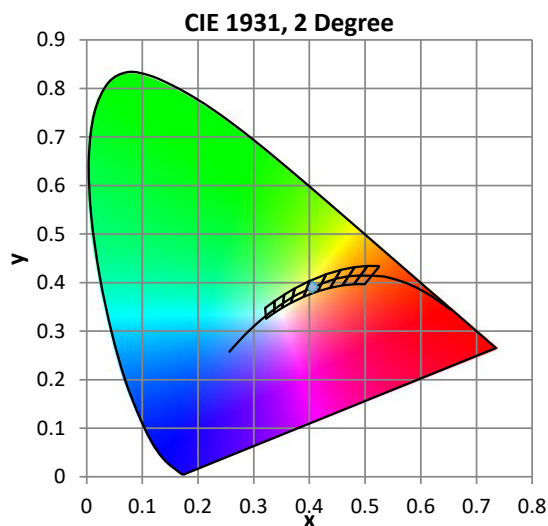
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.5 °C	120.1 VAC	0.1475 A	17.50 W	0.989	60 Hz	8.69 %

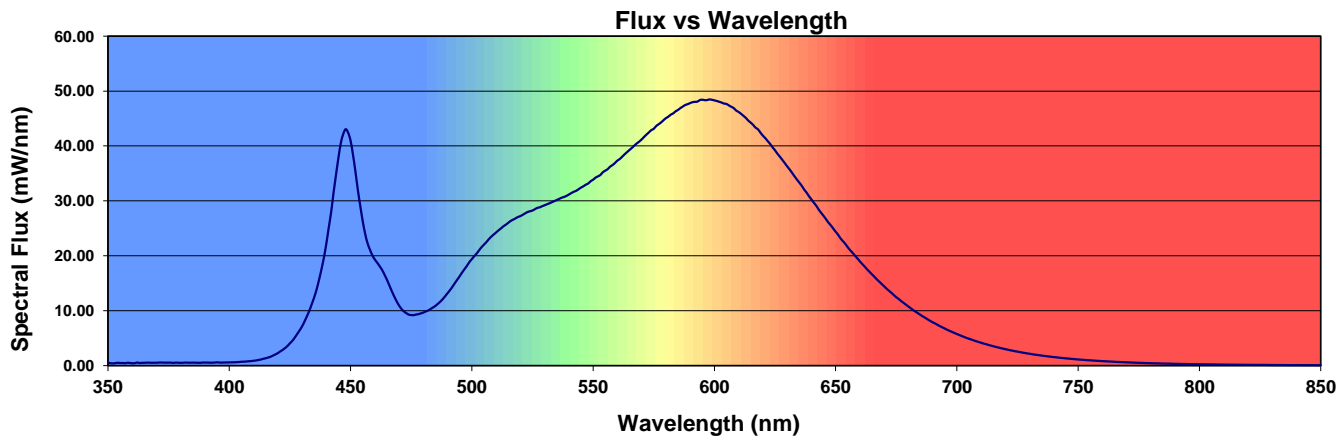
Summary of Results

Total Output:	2566 Lumens	Chromaticity (x):	0.4053
Efficacy:	146.6 lm/w	Chromaticity (y):	0.3906
CCT:	3496 K	Chromaticity (u'):	0.2358
CRI (Ra):	81.0	Chromaticity (v'):	0.5112
CRI (R9):	-2.0	TM-30 Rf:	83
Peak Wavelength:	598 nm	TM-30 Rg:	96
Dominant Wavelength:	555 nm	TM-30 Rcs,h1:	-13%
S/P Ratio:	1.5	Duv:	-0.0001
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
81.0	78.9	88.0	95.5	80.2	79.4	84.5	83.3	58.6	-2.0	72.7	79.7	65.6	80.9	97.7	71.2



Distribution - Goniophotometer

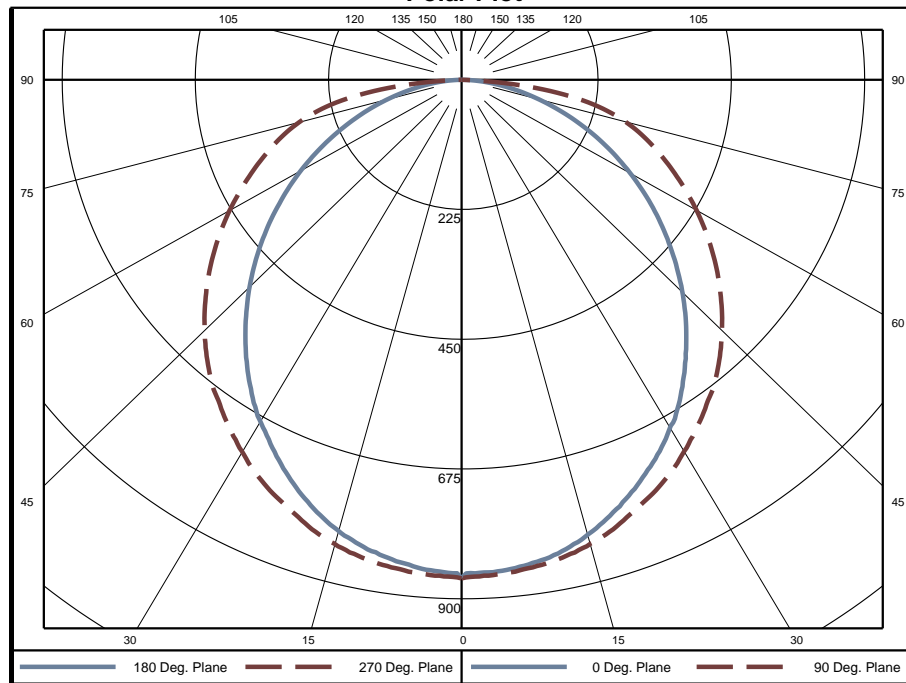
Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.1 °C	120.0 VAC	0.1475 A	17.51 W	0.989	60 Hz	8.74 %

Summary of Results

Spacing Criteria	Total Lumen Output:	2534 Lumens
0-180: 1.20	Luminaire Efficacy:	144.7 lm/w
90-270: 1.28	Maximum Candela:	868 Candela
Corrected UGR (Room Dimension: X=4H, Y=8H, Reflectances: 70/50/20%, S/H: 1)		
Crosswise: 18.6	Endwise: 21.9	

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	20.6	0.8%	60-65	172.3	6.8%	120-125	0	0.0%
5-10	61.1	2.4%	65-70	149.4	5.9%	125-130	0	0.0%
10-15	99.4	3.9%	70-75	124.1	4.9%	130-135	0	0.0%
15-20	133.8	5.3%	75-80	95.4	3.8%	135-140	0	0.0%
20-25	163.2	6.4%	80-85	58.4	2.3%	140-145	0	0.0%
25-30	187.3	7.4%	85-90	13.4	0.5%	145-150	0	0.0%
30-35	204.8	8.1%	90-95	0	0.0%	150-155	0	0.0%
35-40	215.8	8.5%	95-100	0	0.0%	155-160	0	0.0%
40-45	219.4	8.7%	100-105	0	0.0%	160-165	0	0.0%
45-50	216.3	8.5%	105-110	0	0.0%	165-170	0	0.0%
50-55	207.0	8.2%	110-115	0	0.0%	170-175	0	0.0%
55-60	192.0	7.6%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1086	42.9%
0-60	1921	75.8%
0-90	2534	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	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6	864.6
	5	853.3	863.5	862.3	859.6	858.8	858.6	860.6	862.2	849.2	862.2	860.6	858.6	858.8	859.6	862.3
	10	840.8	850.0	849.5	849.4	849.5	848.7	848.2	848.2	832.0	848.2	848.2	848.7	849.5	849.4	849.5
	15	814.9	826.9	830.4	832.4	832.7	830.9	827.2	824.0	808.0	824.0	827.2	830.9	832.7	832.4	830.4
	20	779.6	792.9	799.4	805.6	807.2	802.8	794.8	788.4	772.3	788.4	794.8	802.8	807.2	805.6	799.4
	25	739.9	752.4	764.0	775.3	779.3	772.7	760.0	747.7	727.7	747.7	760.0	772.7	779.3	775.3	764.0
	30	692.7	705.0	722.1	738.9	743.8	735.7	716.9	700.6	680.4	700.6	716.9	735.7	743.8	738.9	722.1
	35	638.7	653.8	677.3	696.4	704.7	694.0	671.9	648.8	625.9	648.8	671.9	694.0	704.7	696.4	677.3
	40	578.6	595.2	624.3	652.5	663.7	649.3	618.4	590.2	566.0	590.2	618.4	649.3	663.7	652.5	624.3
	45	516.0	533.3	568.4	601.8	615.1	598.5	561.9	528.1	504.0	528.1	561.9	598.5	615.1	601.8	568.4
	50	451.1	469.7	509.4	547.7	563.8	544.6	503.3	464.9	440.1	464.9	503.3	544.6	563.8	547.7	509.4
	55	386.7	405.5	448.8	491.6	509.3	488.5	443.3	400.1	374.4	400.1	443.3	488.5	509.3	491.6	448.8
	60	321.1	341.1	388.0	434.0	453.6	430.8	382.8	335.8	310.5	335.8	382.8	430.8	453.6	434.0	388.0
	65	257.1	277.1	327.4	376.1	396.7	372.7	322.1	272.7	246.1	272.7	322.1	372.7	396.7	376.1	327.4
	70	194.1	215.8	268.5	320.1	342.5	317.2	264.0	211.4	184.7	211.4	264.0	317.2	342.5	320.1	268.5
	75	134.0	157.4	212.0	263.5	284.8	260.2	207.6	153.8	127.1	153.8	207.6	260.2	284.8	263.5	212.0
	80	80.6	103.3	152.3	191.0	205.7	187.9	148.7	100.8	75.0	100.8	148.7	187.9	205.7	191.0	152.3
	85	35.0	49.7	74.2	82.6	85.1	80.4	71.9	48.1	32.1	48.1	71.9	80.4	85.1	82.6	74.2
	90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

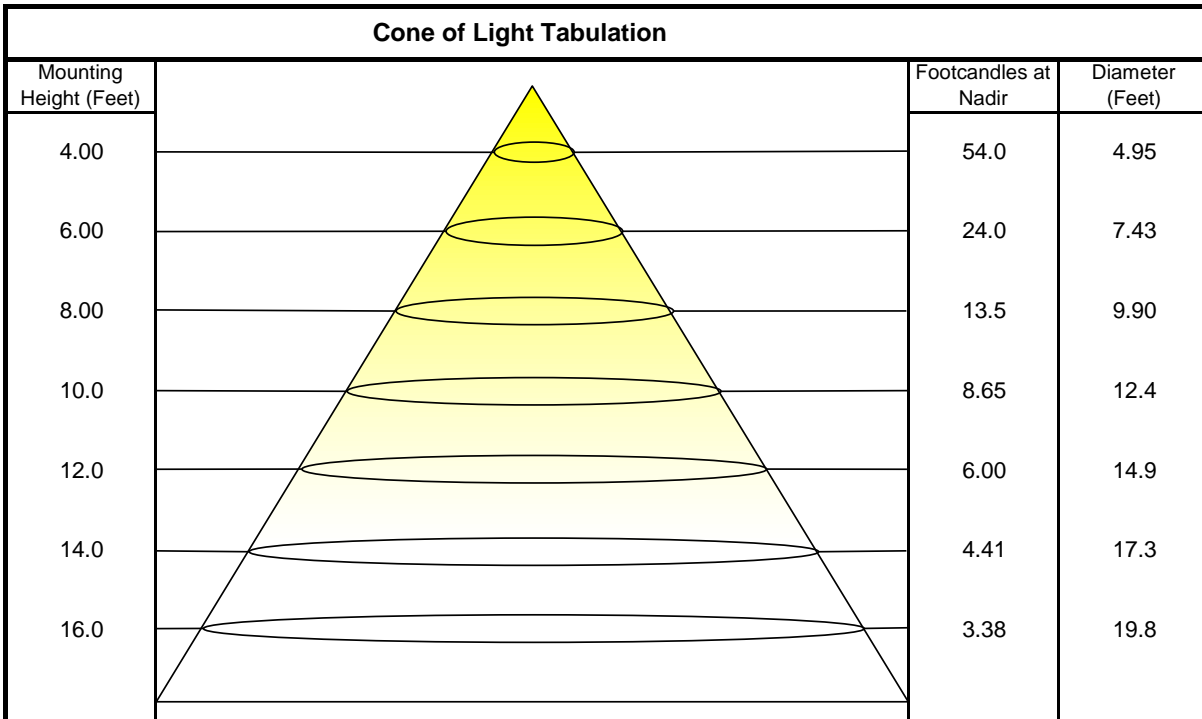
Vertical Angle (Degrees)	0	45	90
	0	2533	2533
	45	2138	2549
	55	1976	2602
	65	1782	2750
	75	1517	3225
	85	1175	2861



Coefficients of Utilization - Zonal Cavity Method

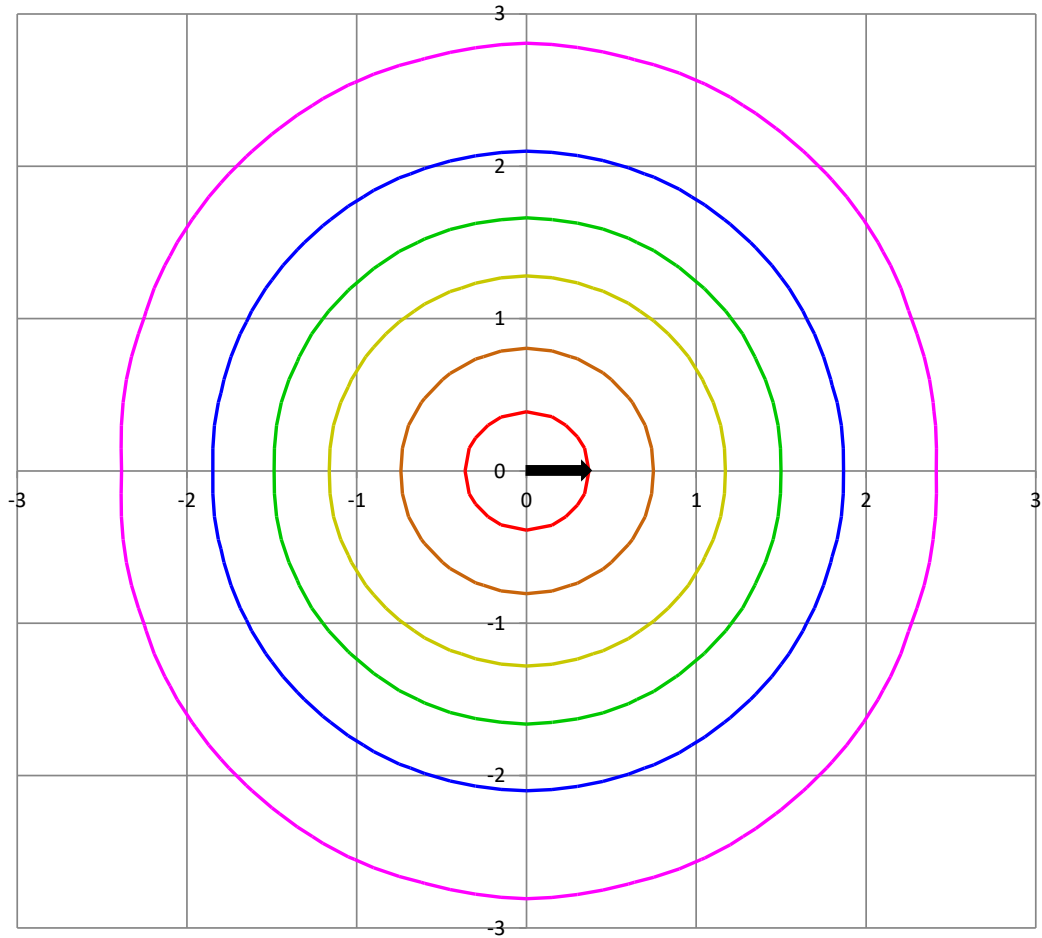
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
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	101	96	93	96	93	90	92	90	87	89	86	84	82
2	98	89	82	76	95	87	81	75	84	78	73	80	76	72	77	73	70	68
3	89	78	70	63	86	76	69	62	73	67	61	71	65	60	68	63	59	57
4	81	69	60	53	79	68	59	53	65	58	52	63	56	51	60	55	50	48
5	75	62	52	45	73	60	52	45	58	51	45	56	49	44	54	48	44	42
6	69	55	46	40	67	54	46	39	53	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	35	46	39	34	45	39	34	32
8	60	46	37	31	58	45	37	31	44	36	31	42	36	31	41	35	30	28
9	56	42	34	28	54	41	33	28	40	33	28	39	32	28	38	32	27	26
10	52	39	31	25	51	38	31	25	37	30	25	36	30	25	35	29	25	23

Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	864.6 Candela
Central Cone Intensity:	863 Candela
Beam Flux:	1792.5 Lumens
Beam Angle (0-180):	102.1 Degrees
Beam Angle (90-270):	123.7 Degrees
Field Angle (0-180):	158.3 Degrees
Field Angle (90-270):	169.9 Degrees

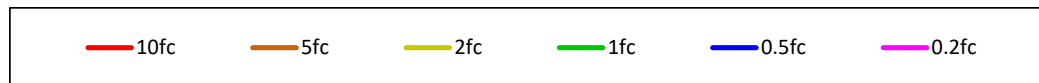


ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height



ANSI/IES TM-30-18 Color Rendition Report

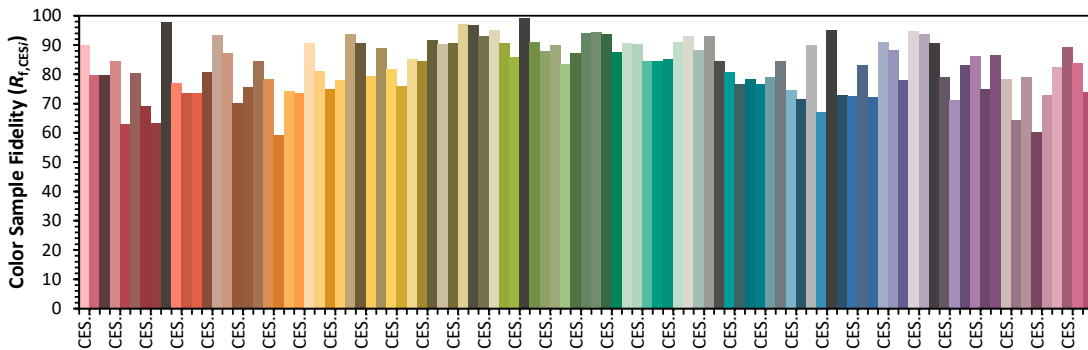
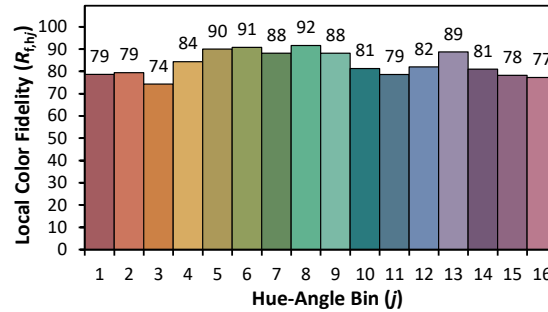
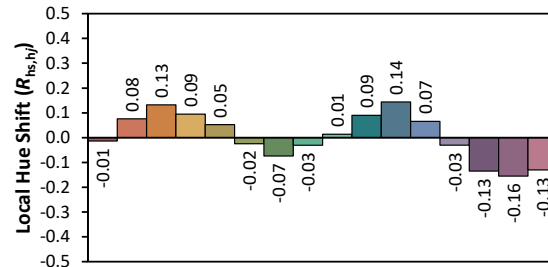
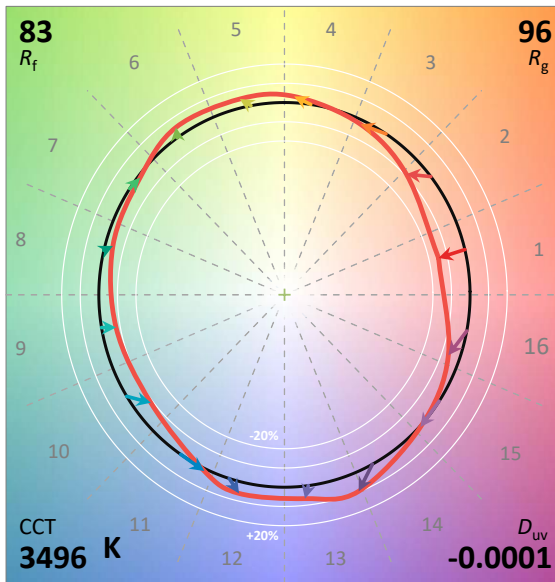
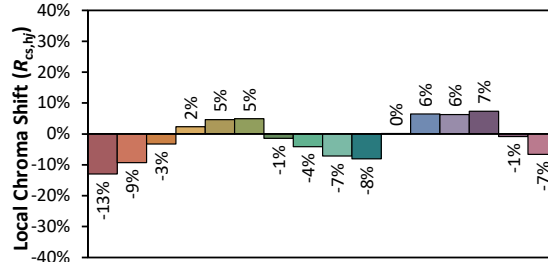
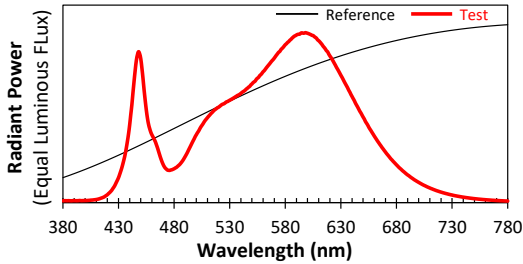
Date: 2024-02-28

Manufacturer:

H E Williams Inc

Model:

FT-22-2-8-3500K-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 0.4053

y 0.3906

u' 0.2358

v' 0.5112

CIE 13.3-1995
(CRI)

R_a 81

R_g -2

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