



UL LLC  
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## Indoor Distribution Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-10-2014

**Prepared For**  
**B-K Lighting INC**

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Madera, CA 93636  
United States

**Catalog Number**  
**HU-LED-TR-X116-WFL-WHP-9-C-1-INC-120-PROTOTYPE(4000K)**

Order Number

13244408

Test Number

13244408.11A

Revised Date:

2020-03-17

Test Date

2020-03-04

Prepared By

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Approved By

Eric Gaudreau, Engineering Leader

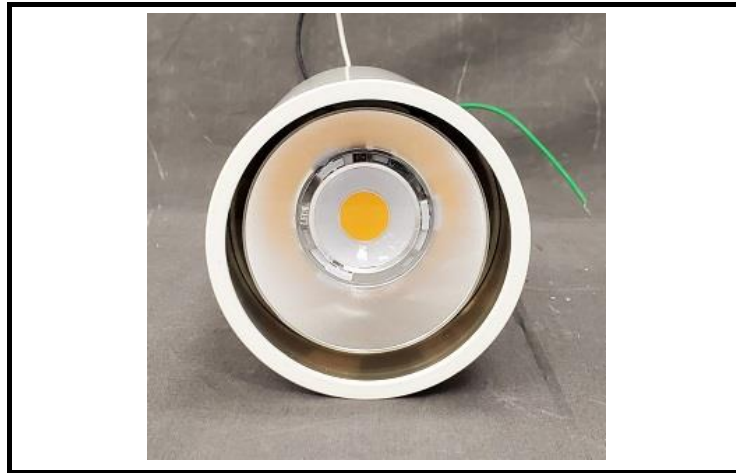
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**Luminaire Description:** White metal cylindrical housing and clear glass lens  
**Lamp:** One (1) White LED with optic below  
**Mounting:** Pendant  
**Ballast/Driver:** One (1) ERP ESS040W-0900-42

**Luminaire**



**Luminaire Characteristics**  
Luminous Diameter: 3.50 in.

**Summary of Results**

Total Luminaire Output:	3616 Lumens
Luminaire Efficacy:	105.6 lm/w
Maximum Candela:	3938 Candela

**Test Conditions**

Test Temperature:	25.4 °C
Voltage:	120.1 VAC
Current:	0.2903 A
Power:	34.26 W
Power Factor:	0.983
Frequency:	60 Hz
Current THD:	12.7 %

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



## Distribution - Goniophotometer

### Distribution Test Conditions

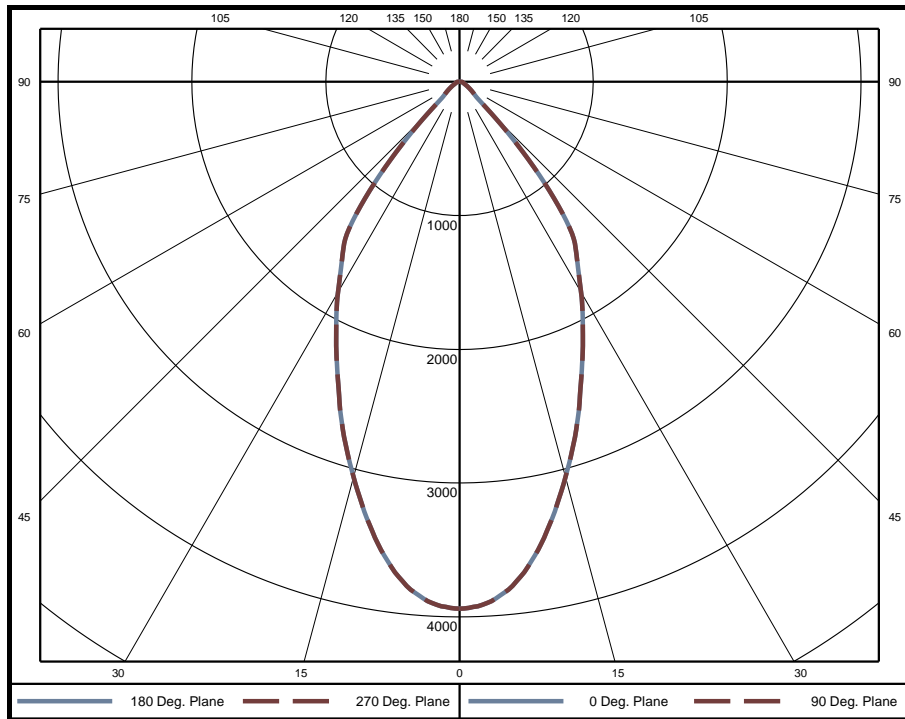
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.1 VAC	0.2903 A	34.26 W	0.983	60 Hz	12.7 %

### Summary of Results

**Spacing Criteria**  
 0-180: 0.79  
 90-270: 0.79

**Total Lumen Output:** 3616 Lumens  
**Luminaire Efficacy:** 105.6 lm/w  
**Maximum Candela:** 3938 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	92.9	2.6%	60-65	25.2	0.7%	120-125	0	0.0%
5-10	262.6	7.3%	65-70	18.4	0.5%	125-130	0	0.0%
10-15	388.1	10.7%	70-75	14.9	0.4%	130-135	0	0.0%
15-20	465.4	12.9%	75-80	12.7	0.4%	135-140	0	0.0%
20-25	498.4	13.8%	80-85	11.4	0.3%	140-145	0	0.0%
25-30	503.5	13.9%	85-90	6.2	0.2%	145-150	0	0.0%
30-35	485.5	13.4%	90-95	0	0.0%	150-155	0	0.0%
35-40	428.6	11.9%	95-100	0	0.0%	155-160	0	0.0%
40-45	237.6	6.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	78.5	2.2%	105-110	0	0.0%	165-170	0	0.0%
50-55	50.5	1.4%	110-115	0	0.0%	170-175	0	0.0%
55-60	36.0	1.0%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	3125	86.4%
0-60	3528	97.6%
0-90	3616	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	3938	3938	3938	3938	3938	3938	3938	3938	3938	3938	3938	3938	3938	3938	3938
	5	3833	3833	3833	3833	3833	3833	3833	3833	3833	3833	3833	3833	3833	3833	3833
	10	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507
	15	3058	3058	3058	3058	3058	3058	3058	3058	3058	3058	3058	3058	3058	3058	3058
	20	2608	2608	2608	2608	2608	2608	2608	2608	2608	2608	2608	2608	2608	2608	2608
	25	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180	2180
	30	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815	1815
	35	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509	1509
	40	986	986	986	986	986	986	986	986	986	986	986	986	986	986	986
	45	337	337	337	337	337	337	337	337	337	337	337	337	337	337	337
	50	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
	55	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
	60	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
	65	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
	70	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
	75	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
	80	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
	85	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
	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/m<sup>2</sup>)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	634400	634400
	45	76780	76780
	55	26740	26740
	65	16090	16090
	75	16000	16000
	85	35670	35670



### 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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	91	88	86	85
3	101	94	88	84	99	92	87	83	90	85	82	87	84	81	85	82	79	78
4	95	87	81	76	93	86	80	76	84	79	75	82	78	74	80	76	73	72
5	90	81	75	70	88	80	74	70	78	73	69	76	72	68	75	71	68	66
6	85	76	69	64	84	75	69	64	73	68	64	72	67	63	70	66	63	61
7	81	71	64	60	79	70	64	60	69	63	59	67	62	59	66	62	59	57
8	76	66	60	55	75	66	60	55	64	59	55	63	58	55	62	58	55	53
9	72	62	56	52	71	62	56	52	61	55	51	60	55	51	59	54	51	50
10	69	59	52	48	68	58	52	48	57	52	48	57	52	48	56	51	48	46

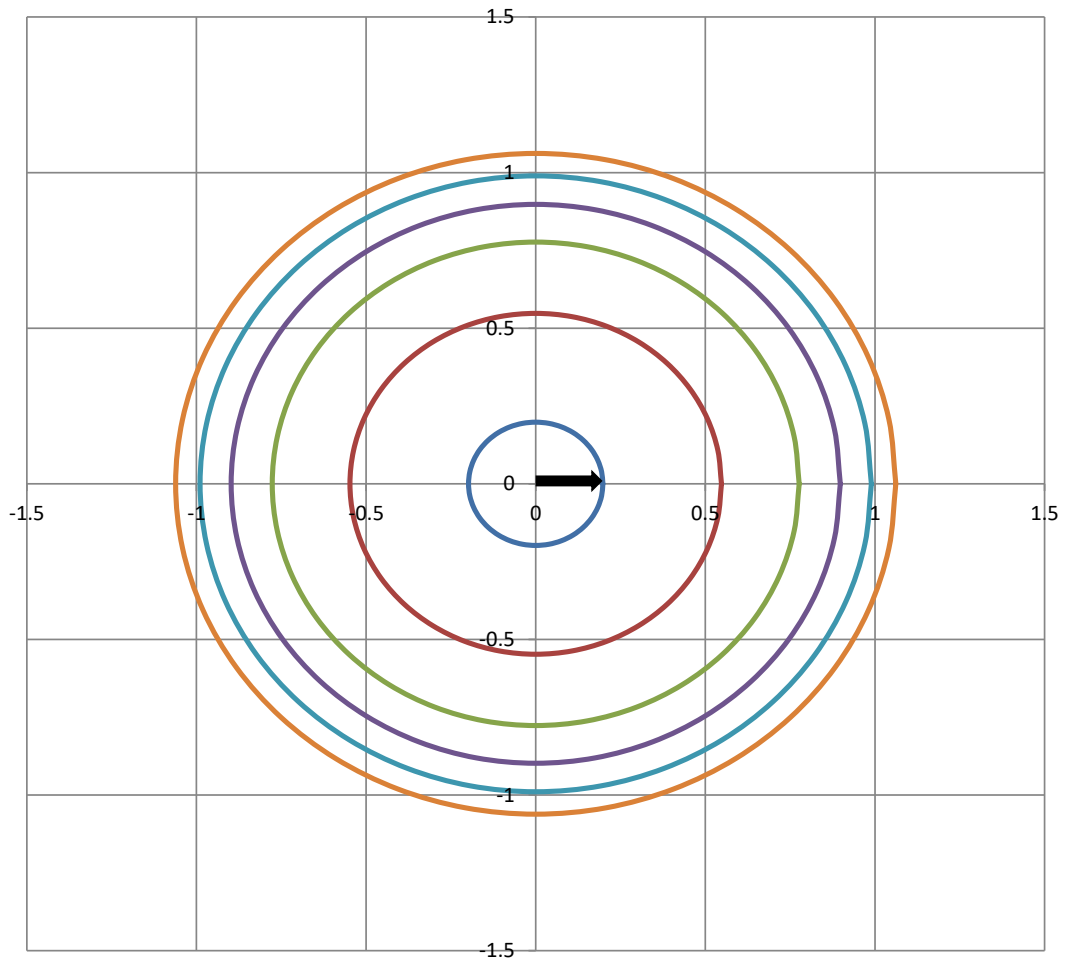
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	3938 Candela
Central Cone Intensity:	3901 Candela
Beam Flux:	1995.0 Lumens
Beam Angle (0-180):	55.7 Degrees
Beam Angle (90-270):	55.7 Degrees
Field Angle (0-180):	88.9 Degrees
Field Angle (90-270):	88.9 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		246	3.17
6.00		109	4.76
8.00		61.5	6.35
10.0		39.4	7.94
12.0		27.3	9.52
14.0		20.1	11.1
16.0		15.4	12.7



## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

50 fc    20 fc    10 fc    5 fc    2 fc    1 fc