ILLUMADYNE, INC

TEST REPORT

SCOPE OF WORK
LED Performance Testing

MODEL NUMBER
4CB-UNV-48-M-3500-[OPTIONS]

PROJECT NUMBER
G104427113

REPORT NUMBER
104427113CRT-014

ISSUE DATE
9/8/2020

REVISED DATE
None

TEST DATES
9/8/2020

DOCUMENT CONTROL NUMBER
RTTDS-R-AMER-Test-3407

PAGES
7

REPORT NUMBER
104427113CRT-014

MODEL NUMBER(s)
4CB-UNV-48-M-3500-[OPTIONS]

REPORT RENDERED TO:
ILLUMADYNE, INC
3840 HOPKINS STREET
PENSACOLA, FL 32505

STATEMENT OF LIMITATION

NVLAP Lab Code 100402-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-01101681-0.

TEST STANDARDS

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

In Charge of Testing:

Melanie Brittain

Melanie Brittain
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Reviewer:

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SAMPLE INFORMATION

REPORT NO. 104427113CRT-014

ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	CRT2008241426-001C	4CB-UNV-48-M-3500-[OPTIONS]	High Bay	Production	8/24/2020

*options do not impact performance

SAMPLE PHOTOS - TESTED CONFIGURATIONS

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SUMMARY **REPORT NO. 104427113CRT-014**

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	4CB-UNV-48-M-3500-[OPTIONS]
Product Description:	High Bay
LED Model No.:	Seoul Semiconductor 3528 Series
Driver Model No.:	(2) SS-150VP-56BH
Light Source:	LED

Criteria	Results
Light Output (lumens)	49571.7
Input Power (W) @ 120 (Vac)	312.4
Lumen Efficacy (lm/W)	158.7
Input Power Factor () @ 120 (Vac)	0.998

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

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TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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PHOTOMETRIC AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	119.96	2611.2	312.41	0.998

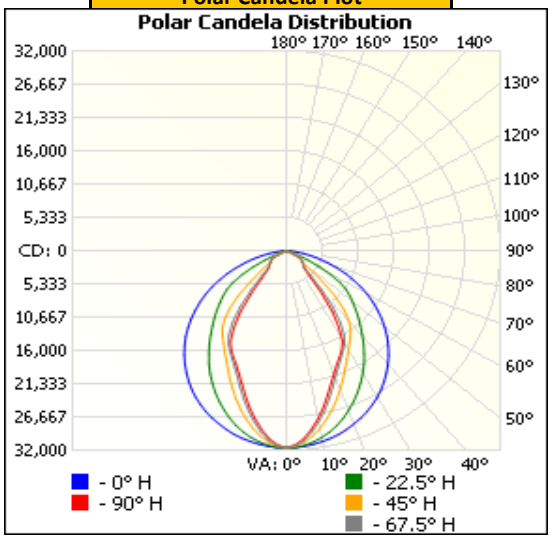
Light Output (lm)	Lumen Efficacy (lm/W)
49571.7	158.7

INTENSITY SUMMARY - CANDELA

Angle	0	22.5	45	67.5	90
0	31617	31617	31617	31617	31617
5	31468	31325	30807	30522	30213
10	31058	30413	28909	27862	27289
15	30446	29043	26388	24619	23881
20	29546	27231	23559	21478	20857
25	28482	25135	20786	19199	18812
30	27151	22811	18547	17338	16768
35	25527	20274	16673	14099	12010
40	23643	17644	14487	8170	5683
45	21562	15239	10201	3831	3679
50	19228	12998	4758	3199	3235
55	16648	10889	2795	2773	2851
60	13998	7649	2321	2385	2253
65	11004	3551	1906	185	228
70	8016	1478	244	125	178
75	5145	967	110	106	128
80	2602	126	72	80	85
85	681	20	29	43	44
90	0	0	0	0	0
95	0	0	0	0	0
100	0	0	0	0	0
105	0	0	0	0	0
110	0	0	0	0	0
115	0	0	0	0	0
120	0	0	0	0	0
125	0	0	0	0	0
130	0	0	0	0	0
135	0	0	0	0	0
140	0	0	0	0	0
145	0	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0
165	0	0	0	0	0
170	0	0	0	1	2
175	0	0	0	0	0
180	0	0	0	0	0

Entire luminous intensity matrix found in .IES file

Polar Candela Plot



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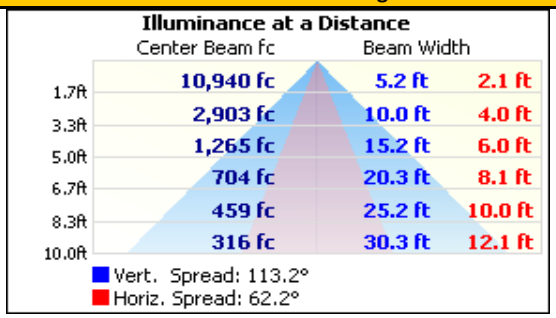
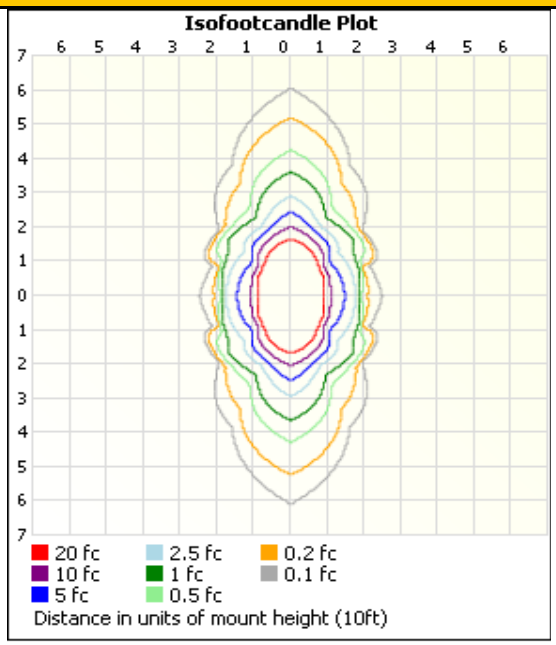
ILLUMINANCE SUMMARY

Mounting Height: 10ft

Illuminance - Cone Of Light



Isoillumination Plot



ZONAL LUMENS

Zonal Lumen Summary

Zone	Lumens	Luminaire
0-30	20,623.6	41.6%
0-40	31,380.2	63.3%
0-60	45,401.0	91.6%
60-90	4,170.7	8.4%
70-100	1,157.8	2.3%
90-120	0.0	0.0%
0-90	49,571.7	100.0%
90-180	0.0	0.0%
0-180	49,571.7	100.0%

Zone	Lumens	Total	Zone	Lumens	Total
0-10	2885.8	5.8%	90-100	0.0	0.0%
10-20	7514.9	15.2%	100-110	0.0	0.0%
20-30	10222.9	20.6%	110-120	0.0	0.0%
30-40	10756.6	21.7%	120-130	0.0	0.0%
40-50	8163.1	16.5%	130-140	0.0	0.0%
50-60	5857.7	11.8%	140-150	0.0	0.0%
60-70	3012.9	6.1%	150-160	0.0	0.0%
70-80	1001.9	2.0%	160-170	0.0	0.0%
80-90	155.9	0.3%	170-180	0.0	0.0%

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EQUIPMENT LIST

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#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	LSI High Speed Mirror Goniometer	6440	---	8/21/2020	9/21/2020
2	Elgar AC Power Supply	CW1251	---	VBU	VBU
3	Yokogawa Power Analyzer	WT210	E464	5/11/2020	5/11/2021
4	Traceable Hygrothermometer	4800	L203	2/17/2020	2/17/2021
5	M-D Building Products Digital Level	Smart Tool	307-L112	5/14/2020	5/14/2021
6	NIST Luminous Intensity Standard Source	NBS10322	N1427	2/11/2019	2/11/2021
7	NIST Luminous Intensity Standard Source	NBS10332	N1435	2/11/2019	2/11/2021
8	NIST Luminous Intensity Standard Source	NBS10265	N1437	2/11/2019	2/11/2021
9	NIST Luminous Flux Standard Source	NBS10428	N1424	1/3/2019	1/3/2021
10	Sorenson DC Power Supply	XG 150-10	---	VBU	VBU
11	Omega Thermometer	DPi8-C24	M263	2/27/2020	2/27/2021

Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

REVISION HISTORY

#	Revision Date	Updated By	Reviewed By	Description of Change
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