

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ENCL3SF-L15/ENCL3SFW-930W-W

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-031

ISSUE DATE

8/18/2020

REVISED DATE

None

TEST DATES

08/14/2020 through 08/17/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-031

MODEL NUMBER(s)

ENCL3SF-L15/ENCL3SFW-930W-W

REPORT RENDERED TO:

GENERATION BRANDS, LLC
7400 LINDER AVE
SKOKIE, IL 60077

STATEMENT OF LIMITATION

NVLAP Lab Code 600186-0. 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-01080748-3.

TEST STANDARDS

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

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

In Charge of Testing:



Ian Smith
Engineer
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Reviewer:



Jeff Davis
NA Technical Lead
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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH08122020093108-031	ENCL3SF-L15/ENCL3SFW-930W-W	ENTRA CL WALL WASH-400mA	Production	8/12/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ENCL3SF-L15/ENCL3SFW-930W-W	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ENCL3SF-L15/ENCL3SFW-930W-W
Product Description:	ENTRA CL WALL WASH-400mA
LED Model No.:	LUMINUS: CXM-6-30-90-18-AC40-F5-3
Driver Model No.:	TECH LIGHTING PTB020W-0400-42-VCC
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	933.1	918.7
Input Power (W) @ 120VAC (Vac)	15.72	15.66
Lumen Efficacy (lm/W)	59.4	58.7
Input Power Factor (I) @ 120VAC (Vac)	0.991	0.991

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	11.11
Correlated Color Temperature (K)	2924
Color Rendering Index - Ra (I)	92.2
Color Rendering Index - R9 (I)	59.2
Duv (I)	0.0008
Chromaticity Coordinate (x)	0.444
Chromaticity Coordinate (y)	0.408
Chromaticity Coordinate (u')	0.253
Chromaticity Coordinate (v')	0.524

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

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

INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral distribution for each EUT resulting in photometric and colorimetric data. 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 inside the sphere and stabilization procedures to LM-79 were followed.

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.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ENCL3SF-L15/ENCL3SFW-930W-W	NA

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

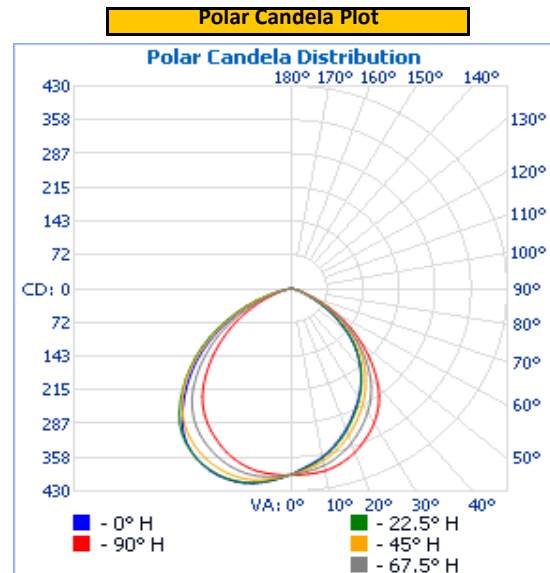
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.1	132.1	15.72	0.991

Light Output (lm)	Lumen Efficacy (lm/W)
933.1	59.4

INTENSITY SUMMARY - CANDELA

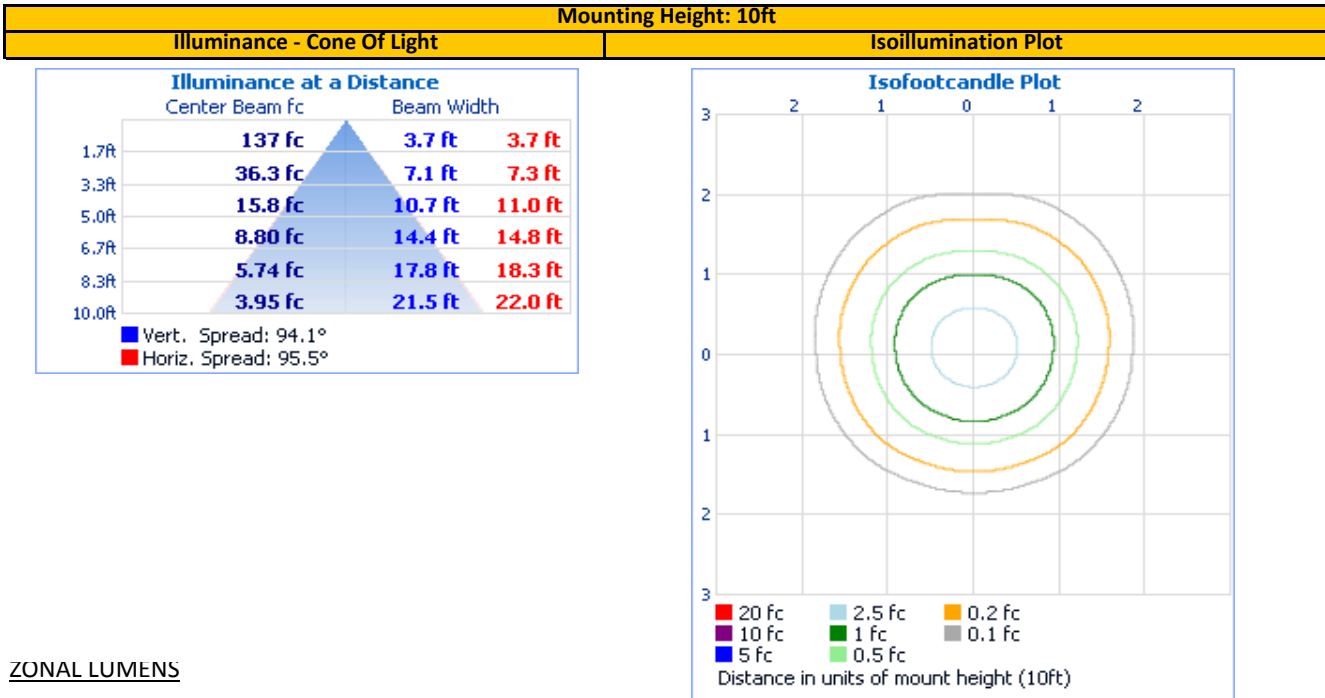
Angle	0	22.5	45	67.5	90
0	395	395	395	395	395
5	378	381	384	389	395
10	362	366	372	381	393
15	342	345	354	368	384
20	319	322	333	350	370
25	294	297	310	328	352
30	269	271	285	304	330
35	243	245	259	278	304
40	214	216	230	246	270
45	183	185	199	209	229
50	148	152	166	171	187
55	111	114	130	133	146
60	76	78	91	97	105
65	45	46	56	64	66
70	27	25	28	35	35
75	18	17	15	16	16
80	11	10	9	8	7
85	5	4	4	3	3
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	0	0
175	0	0	0	0	0
180	0	0	0	0	0

Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	308.5	33.1%	90-100	0.0	0.0%
0-40	500.8	53.7%	10-20	108.2	11.6%
0-60	828.5	88.8%	20-30	162.7	17.4%
60-90	104.6	11.2%	30-40	192.3	20.6%
70-100	27.4	2.9%	40-50	185.5	19.9%
90-120	0.0	0.0%	50-60	142.2	15.2%
0-90	933.1	100.0%	60-70	77.2	8.3%
90-180	0.0	0.0%	70-80	23.9	2.6%
0-180	933.1	100.0%	80-90	3.5	0.4%
			170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ENCL3SF-L15/ENCL3SFW-930W-W	NA

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

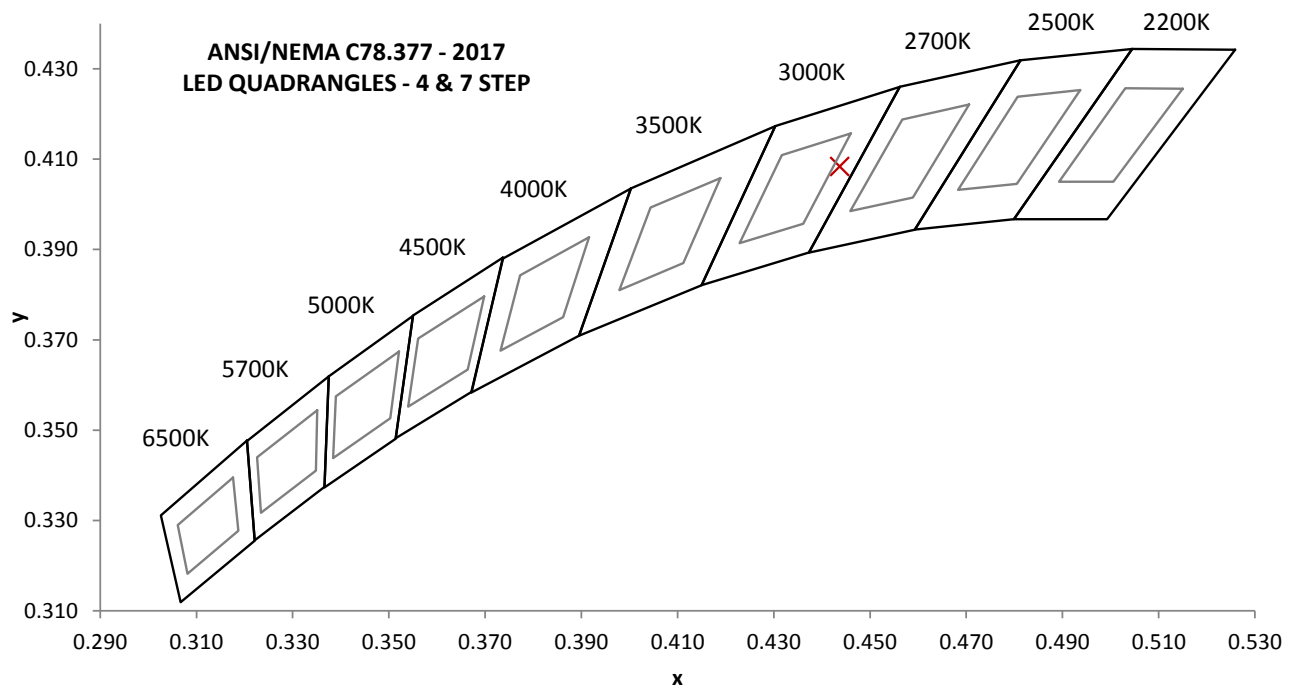
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.03	131.7	15.66	0.991	11.11

Measured at 120.03(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
918.7	58.7	2924	92.2	59.2

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
0.0008	0.444	0.408	0.253	0.524

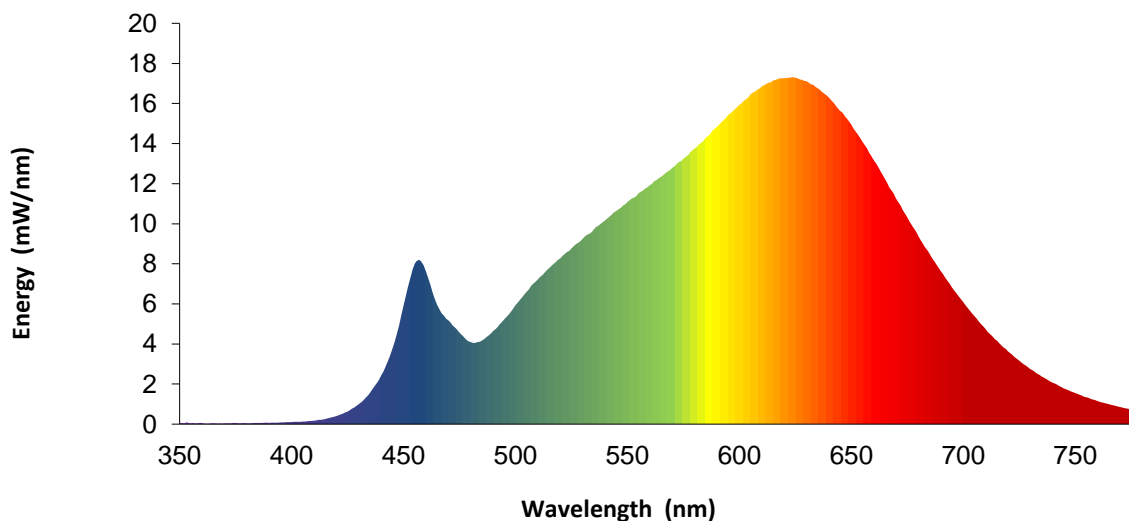


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	7.6		570	12.8		680	9.4
355	0.0		465	6.0		575	13.2		685	8.5
360	0.1		470	5.2		580	13.7		690	7.6
365	0.0		475	4.6		585	14.3		695	6.8
370	0.0		480	4.1		590	14.8		700	6.1
375	0.1		485	4.2		595	15.4		705	5.4
380	0.1		490	4.6		600	15.9		710	4.8
385	0.1		495	5.2		605	16.5		715	4.2
390	0.1		500	5.9		610	16.8		720	3.6
395	0.1		505	6.6		615	17.1		725	3.2
400	0.1		510	7.2		620	17.3		730	2.8
405	0.1		515	7.8		625	17.3		735	2.4
410	0.2		520	8.3		630	17.1		740	2.1
415	0.3		525	8.8		635	16.8		745	1.8
420	0.4		530	9.2		640	16.3		750	1.6
425	0.6		535	9.7		645	15.6		755	1.3
430	1.0		540	10.2		650	14.9		760	1.2
435	1.5		545	10.6		655	14.1		765	1.0
440	2.4		550	11.1		660	13.2		770	0.9
445	3.7		555	11.5		665	12.2		775	0.7
450	5.9		560	11.9		670	11.3		780	0.6
455	8.0		565	12.3		675	10.3		---	---

Without correction of sample absorption.



Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only

EQUIPMENT LIST

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#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
2	Omega Thermometer	DPI8-C24	146920	10/3/2019	10/3/2020
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Pacific AC Power Supply	118-ACX	CHI0153	VBU	VBU
6	Newport Humidity Recorder	iServer	CHI0456	10/11/2019	10/11/2020
7	Labsphere Spectroradiometer	CDS2600	CHI0539	VBU	VBU
8	3 Meter Sphere	SPR600	CHI0088	VBU	VBU
9	Elgar AC Power Supply	CW1251	146112	VBU	VBU
10	Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
11	Yokogawa Power Meter	WT1600	146769	4/6/2020	4/6/2021
12	Extech K Temperature Meter	421502	CHI0476	10/1/2019	10/1/2020
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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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