

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESPTPXX500930

PROJECT NUMBER

G104349704

REPORT NUMBER

10434974CHI-028

ISSUE DATE

8/17/2020

REVISED DATE

8/26/2020

TEST DATES

08/16/2020 through 08/17/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

10434974CHI-028

MODEL NUMBER(s)

ESPTPXX500930

REPORT RENDERED TO:

GENERATION BRANDS, LLC
7400 LINDER AVE
SKOKIE, IL 60077
COUNTRY

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:

Reviewer:

Signature on file

Signature on file

Ian Smith
Engineer
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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	AH08122020025613-028	ESPTPXX500930	ESSENCE 4 FT BARE 500/LM TAPE	Production	8/12/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESPTPXX500930	1

SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESPTPXX500930
Product Description:	ESSENCE 4 FT BARE 500/LM TAPE
LED Model No.:	P Series
Driver Model No.:	NA
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	2023.5	2095.7
Input Power (W) @ 24VDC (Vdc)	16.94	17.39
Lumen Efficacy (lm/W)	119.5	120.5
Input Power Factor (I) @ 24VDC (Vdc)	NA	NA

Criteria	Results
Input ATHD (%) @ 24VDC (Vdc)	NA
Correlated Color Temperature (K)	3063
Color Rendering Index - Ra (I)	98.2
Color Rendering Index - R9 (I)	98.9
Duv (I)	-0.0004
Chromaticity Coordinate (x)	0.432
Chromaticity Coordinate (y)	0.401
Chromaticity Coordinate (u')	0.249
Chromaticity Coordinate (v')	0.520

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	ESPTPXX500930	NA

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

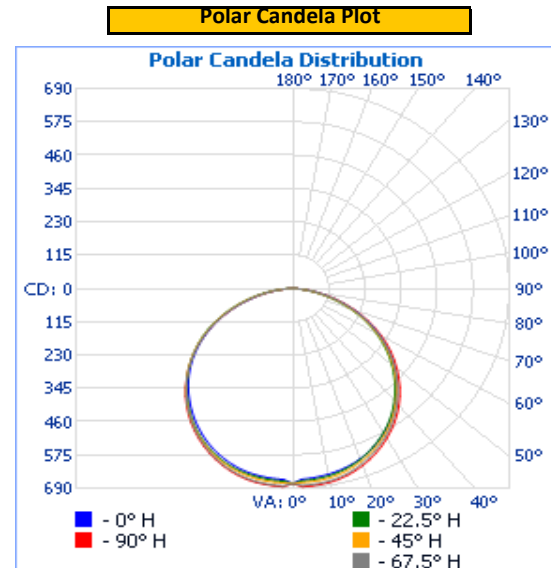
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	705.7	16.94	1.000

Light Output (lm)	Lumen Efficacy (lm/W)
2023.5	119.5

INTENSITY SUMMARY - CANDELA

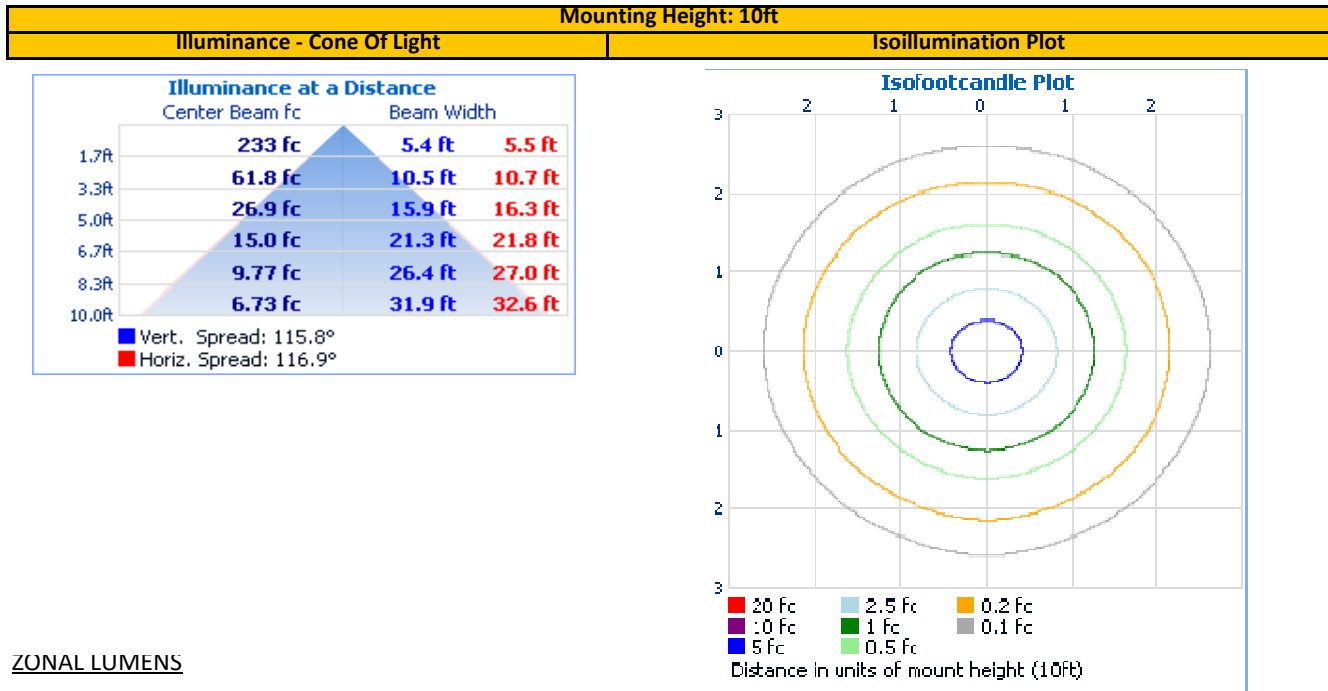
Angle	0	22.5	45	67.5	90
0	673	673	673	673	673
5	658	664	670	680	684
10	652	658	665	675	680
15	642	646	653	664	668
20	626	628	636	644	651
25	605	605	612	620	627
30	578	577	584	591	598
35	546	543	550	557	565
40	508	504	511	517	526
45	466	460	467	473	482
50	421	413	418	424	434
55	370	362	366	372	381
60	316	306	311	316	325
65	259	248	251	256	265
70	196	186	189	195	202
75	134	124	128	133	140
80	77	69	71	76	81
85	28	23	25	27	31
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	533.3	26.4%	0-10	64.0	3.2%
0-40	880.4	43.5%	10-20	185.2	9.2%
0-60	1,580.9	78.1%	20-30	284.1	14.0%
60-90	442.6	21.9%	30-40	347.1	17.2%
70-100	184.2	9.1%	40-50	365.2	18.0%
90-120	0.0	0.0%	50-60	335.3	16.6%
0-90	2,023.5	100.0%	60-70	258.4	12.8%
90-180	0.0	0.0%	70-80	146.5	7.2%
0-180	2,023.5	100.0%	80-90	37.7	1.9%
			90-100	0.0	0.0%
			100-110	0.0	0.0%
			110-120	0.0	0.0%
			120-130	0.0	0.0%
			130-140	0.0	0.0%
			140-150	0.0	0.0%
			150-160	0.0	0.0%
			160-170	0.0	0.0%
			170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESPTPXX500930	NA

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

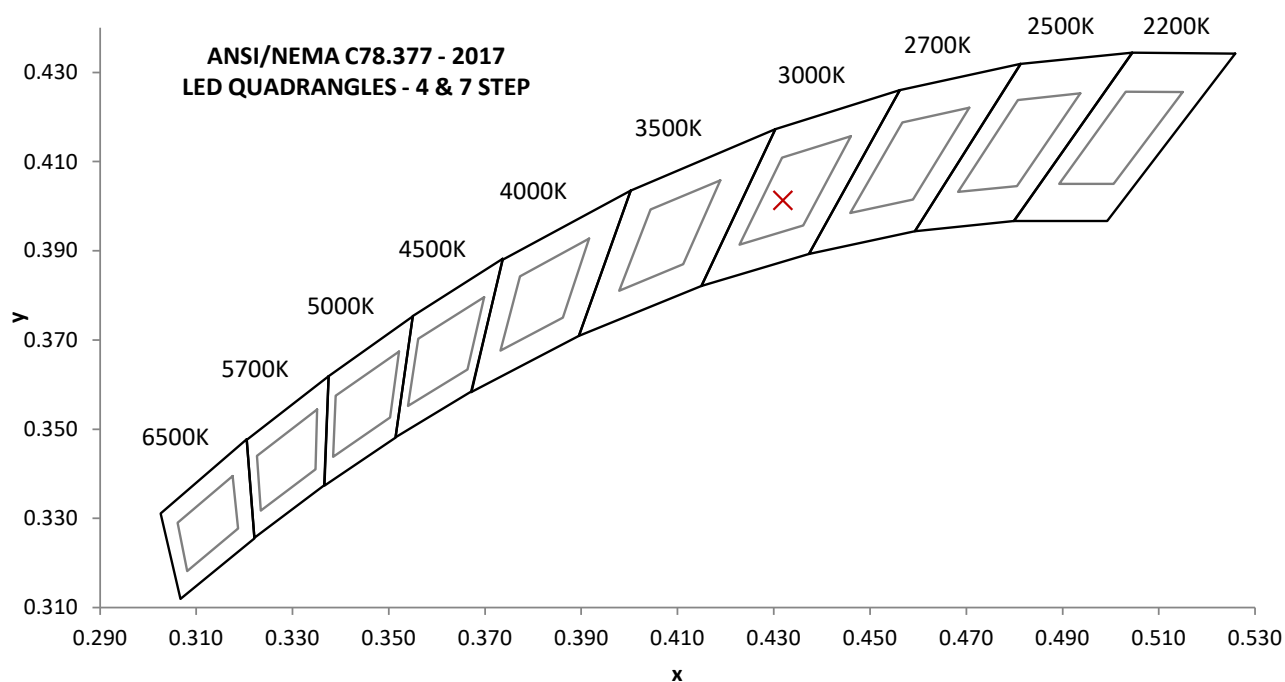
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor (I)	Input ATHD (%)
23.99	724.9	17.39	NA	NA

Measured at 23.99(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (I)	CRI - R9 (I)
2095.7	120.5	3063	98.2	98.9

Duv (I)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0004	0.432	0.401	0.249	0.520

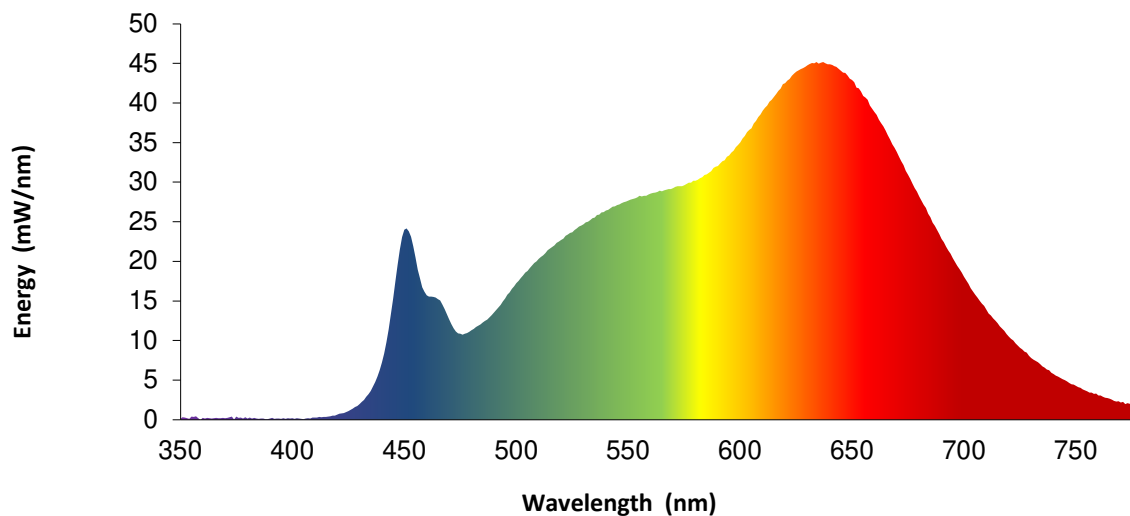


SPECTRAL DISTRIBUTION OVER WAVELENGTHS

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nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.2		460	15.7		570	29.3		680	28.2
355	0.4		465	15.2		575	29.6		685	25.6
360	0.2		470	12.7		580	30.2		690	22.8
365	0.2		475	10.9		585	31.0		695	20.4
370	0.2		480	11.3		590	32.0		700	18.1
375	0.4		485	12.3		595	33.4		705	15.8
380	0.1		490	13.5		600	35.0		710	13.9
385	0.1		495	15.3		605	36.8		715	12.2
390	0.2		500	17.2		610	39.0		720	10.5
395	0.1		505	18.8		615	40.8		725	9.1
400	0.2		510	20.3		620	42.5		730	7.8
405	0.1		515	21.6		625	44.0		735	6.8
410	0.3		520	22.7		630	44.8		740	5.8
415	0.4		525	23.7		635	45.0		745	5.0
420	0.6		530	24.7		640	44.9		750	4.3
425	1.1		535	25.5		645	44.1		755	3.6
430	2.0		540	26.4		650	42.9		760	3.1
435	3.6		545	27.1		655	40.9		765	2.6
440	7.2		550	27.7		660	38.9		770	2.2
445	15.3		555	28.3		665	36.5		775	1.9
450	24.0		560	28.6		670	33.8		780	1.7
455	20.5		565	28.9		675	30.9		---	---

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	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
6	Newport Humidity Recorder	iServer	CHI0456	10/11/2019	10/11/2020
7	Labsphere Spectroradiometer	CDS-600	146923	VBU	VBU
8	2M Rotating Sphere	7660-ROT	146923	VBU	VBU
9	Omega thermometer	USB TC08	EQA002615	4/7/2020	4/7/2021
10	Ametek DC Power Supply	XFR150-8	1468464	VBU	VBU
11	Yokogawa Power Meter	WT210	146880	10/2/2019	10/2/2020
12	Chroma Power Supply	61604	CHI0371	VBU	VBU
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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
---	None	<i>IDS</i> Ian Smith	Jeff Davis <i>JD</i>	Corrected Length in Description
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