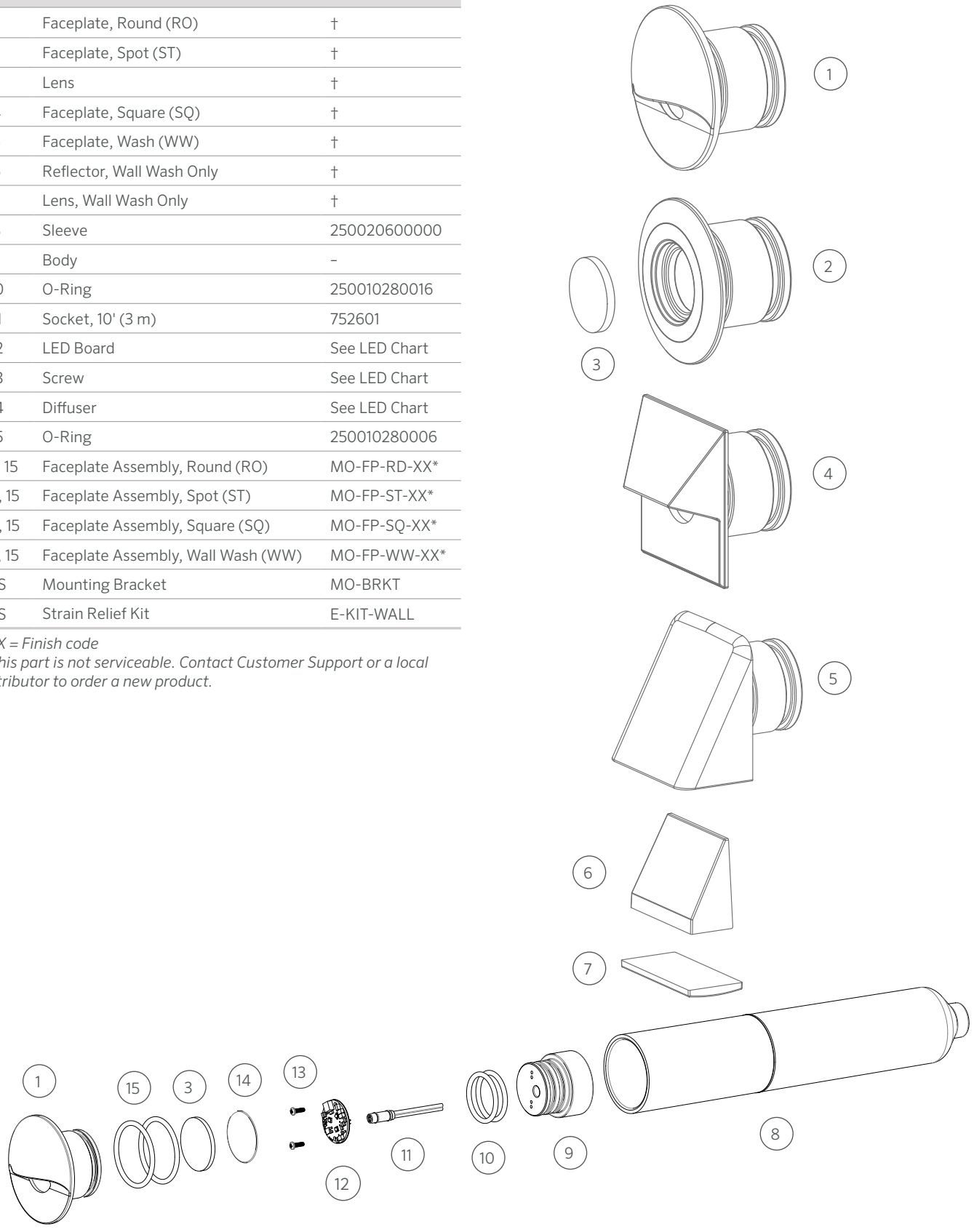
Replacement Parts

ITEM	DESCRIPTION	PART #
1	Faceplate, Round (RO)	†
2	Faceplate, Spot (ST)	†
3	Lens	†
4	Faceplate, Square (SQ)	†
5	Faceplate, Wash (WW)	†
6	Reflector, Wall Wash Only	†
7	Lens, Wall Wash Only	†
8	Sleeve	250020600000
9	Body	-
10	O-Ring	250010280016
11	Socket, 10' (3 m)	752601
12	LED Board	See LED Chart
13	Screw	See LED Chart
14	Diffuser	See LED Chart
15	O-Ring	250010280006
1, 3, 15	Faceplate Assembly, Round (RO)	MO-FP-RD-XX*
2–3, 15	Faceplate Assembly, Spot (ST)	MO-FP-ST-XX*
3–4, 15	Faceplate Assembly, Square (SQ)	MO-FP-SQ-XX*
5–7, 15	Faceplate Assembly, Wall Wash (WW)	MO-FP-WW-XX*
NS	Mounting Bracket	MO-BRKT
NS	Strain Relief Kit	E-KIT-WALL

** XX = Finish code*
† This part is not serviceable. Contact Customer Support or a local distributor to order a new product.



2nd Gen LED Chart

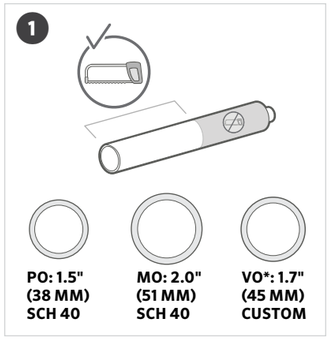
DESCRIPTION	PART #
LED Replacement Kits (Board, Reflector, Screws, Beam Angle Lenses)	
1 LED Up Light Kit (2700K)	KIT-1LED-RD-W
3 LED Up Light Kit (2700K)	KIT-3LED-RD-W
ZD 1 LED Up Light Kit (2700K)	KIT-ZD-1LED-RD-W
ZD 3 LED Up Light Kit (2700K)	KIT-ZD-3LED-RD-W
ZDC 3 LED Kit, Medium	ZDC-KIT-M
Diffusers	
Diffuser	250035120000
Screws	
1 LED/3 LED Screw, #4-40 x ⅜" (Qty Req: 2)	762400

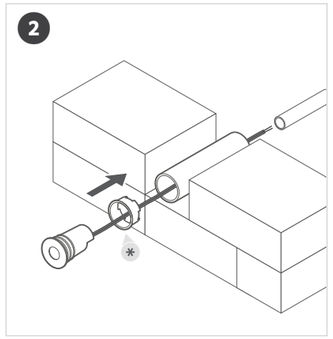
1st Gen LED Chart

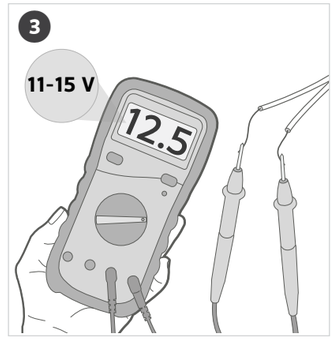
DESCRIPTION	PART #
LED Replacement Kits (Board, Color Filters, Reflector, Screws)	
1 LED Up Light Kit (3900K)	1LED-UL-KIT
3 LED Up Light Kit (3900K)	3LED-UL-KIT
ZD 1 LED Up Light Kit (3900K)	ZD-1LED-UL-KIT
ZD 3 LED Up Light Kit (3900K)	ZD-3LED-UL-KIT
ZD 3 LED T Up Light Kit (TURTLE)	ZD-3LED-T-KIT
Color Filter Lenses Only	
1 LED Color Filter, Amber	770100
1 LED Color Filter, Blue	770101
1 LED Color Filter, Green	770102
3 LED Color Filter, Amber	770800
3 LED Color Filter, Blue	770801
3 LED Color Filter, Green	770802

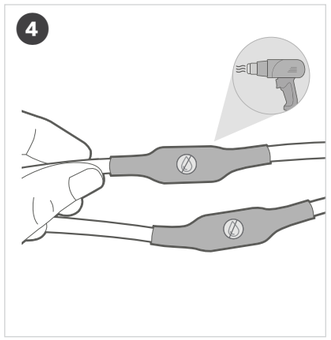
DESIGNER/STANDARD | WALL LIGHT | PO, MO, VO*, CG

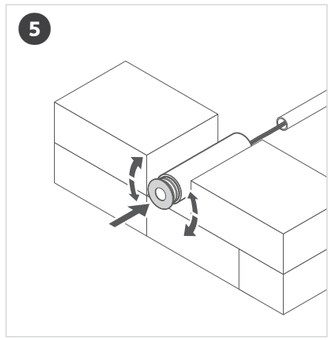
FXLuminaire

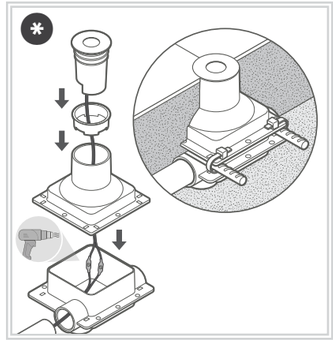












EN INSTALLATION

1. Use provided conduit, and trim length if neccessary.
2. Install conduit sleeve into wall during construction. Run fixture wiring through sleeve. *Coupling for VO fixture only.
3. Use voltmeter to ensure 11 to 15 V at fixture.
4. Connect wiring with waterproof connector.
5. Press faceplate into sleeve. Level and orient fixture as desired.

* For concrete ground-mount option, use construction housing.

FR INSTALLATION

1. Utilisez le manchon fourni et coupez la longueur si nécessaire.
2. Installez le manchon dans le mur pendant la construction. Faites passer les fils par le manchon. *Raccord pour luminaire VO uniquement.
3. Utilisez un voltmètre pour assurer un voltage de 11-15 V par appareil.
4. Raccordez le fil au connecteur étanche.
5. Insérez la façade dans le manchon. Mettez de niveau et orientez le luminaire comme vous le souhaitez.

* Pour une fixation au sol dans du béton, utilisez un boîtier.

RU МОНТАЖ

1. Используйте предоставленный кабелепровод и, если необходимо, обрезайте длину.
2. Смонтируйте муфту для кабелепровода в стене на этапе строительства. Пропустите проводку светильника через муфту. *соединение только для светильника модели VO.
3. С помощью вольтметра убедитесь, что напряжение на светильнике находится в пределах 11–15 В.
4. Подсоедините проводку с помощью водонепроницаемого разъема.
5. С усилием вставьте лицевую панель в муфту. Выровняйте и направьте светильник в требуемом направлении.

* При установке в бетонную поверхность следует использовать корпус, рассчитанный на строительные нагрузки.

ES INSTALACIÓN

1. Utilice el conducto de montaje, recortándolo si es necesario.
2. Instale la funda de conducto en la pared durante la construcción. Tienda el cableado de la luminaria a través de la funda. *Acoplamiento solo para la luminaria VO.
3. Use un voltímetro para comprobar que tiene 11-15 V en la luminaria.
4. Conecte el cableado con un conector impermeable.
5. Presione la carátula hacia la funda. Nivele y oriente la luminaria según lo desee.

* Para la opción de montaje en suelo de concreto, use la carcasa de construcción.

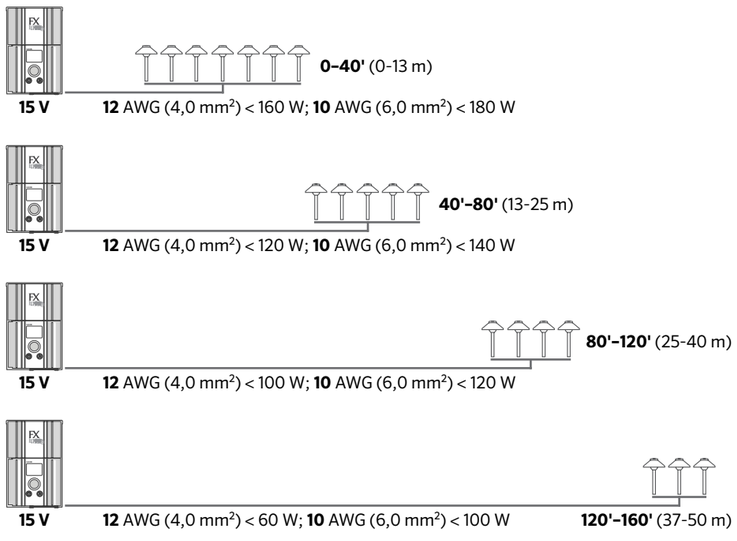
DE INSTALLATION

1. Verwenden Sie den mitgelieferten Kabelkanal und kürzen Sie ggf. die Länge.
2. Bauen Sie den Kabelkanal während der Montage in die Wand ein. Führen Sie die Verkabelung der Leuchte durch den Kanal. *Kupplung nur für VO-Leuchten.
3. Verwenden Sie ein Voltmeter, um eine Spannung von 11-15 V an der Leuchte sicherzustellen.
4. Verbinden Sie die Kabel mit wasserdichten Kabelverbindern.
5. Drücken Sie die Blende in den Kanal. Richten Sie die Leuchte wie gewünscht waagerecht und senkrecht aus.

* Verwenden Sie das Montagegehäuse für die Montageoption auf Betonböden.

CIRCUITING GUIDELINES

Guía para el cableado / Recommandations pour le raccordement / Anschlussrichtlinien / Рекомендации по формированию электрических цепей



EN TRANSFORMERS

Single transformer: When using one transformer, center the transformer on the wattage load. Minimize all cable runs to reduce voltage drop.

Multiple transformers: When using multiple transformers, spread the load evenly across all transformers. Avoid voltage drop by installing the transformers as close to the fixtures as possible.

FR TRANSFORMATEURS

Transformateur unique : si vous utilisez un seul transformateur, placez-le du côté recevant le plus d'éclairage. Minimisez les longueurs de câble pour éviter les chutes de tension.

Plusieurs transformateurs : si vous utilisez plusieurs transformateurs, distribuez uniformément la charge entre tous les transformateurs. Évitez les chutes de tension en installant les transformateurs le plus près possible des luminaires.

RU ТРАНСФОРМАТОРЫ

Один трансформатор: если используется один трансформатор, он должен располагаться по центру относительно существующей нагрузки. Используйте кабели минимальной длины, чтобы уменьшить уровень падения напряжения.

Несколько трансформаторов: если используются несколько трансформаторов, нагрузку следует равномерно распределять между ними. Чтобы избежать чрезмерного падения напряжения, устанавливайте трансформаторы как можно ближе к светильникам.

ES TRANSFORMADORES

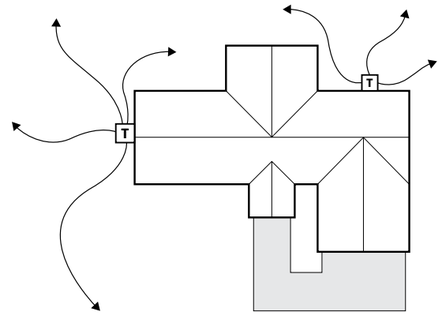
Transformador único: Al usar un solo transformador, procure colocarlo de tal forma que la carga de potencia quede balanceada. Optimice todos los tendidos de cable para reducir las caídas de voltaje.

Transformadores múltiples: Al usar varios transformadores, distribuya la carga equitativamente a través de todos ellos. Evite la caída de voltaje al instalar los transformadores lo más cerca posible de las luminarias.

DE TRANSFORMATOREN

Ein Transformator: Wenn Sie einen Transformator verwenden, zentrieren Sie den Transformator zwischen den Wattlasten. Minimieren Sie alle Kabelwege, um den Spannungsabfall zu reduzieren.

Mehrere Transformatoren: Wenn Sie mehrere Transformatoren verwenden, verteilen Sie die Last gleichmäßig auf alle Transformatoren. Vermeiden Sie Spannungsabfälle, indem Sie die Transformatoren so nahe wie möglich an den Leuchten installieren.



EN **Please read and keep all safety and use instructions.** If you have questions, contact your local distributor or visit the online support section at **fxl.com/support**.

WARNING – To reduce the risk of FIRE OR INJURY TO PERSON:

- Turn off/unplug and allow to cool before replacing lamp.
- Lamp gets HOT quickly. Contact only switch/plug when turning on.
- Do not touch hot lens, guard, or enclosure.
- Keep lamp away from materials that may burn.
- Do not touch the lamp at any time. Use a soft cloth. Oil from skin may damage lamp.
- Do not operate the luminaire fitting with a missing or damaged shield.

WARNING – Risk of Electric Shock

- May be installed less than 5' (1.5 m) from a pool, spa, or fountain when used with a UL 379 listed transformer.
- A luminaire shall not use tungsten halogen lamps unless the luminaire is marked for such lamps.
- Supply connection and electrical components are located above ground level, except for secondary cord that is suitable for wet locations.

LOW-VOLTAGE CABLE SHALL:

- Be protected by routing in close proximity to the luminaire or fitting, or next to a building structure such as a house or deck.
- Not be buried except for a maximum 6" (152 mm) in order to connect to the main low-voltage cable.
- Have the length cut off so that it is connected to a connector within 6" (152 mm) from a building structure, a luminaire, or fitting.

SCAN for help

fxl.com/**support**

These products contain a light source of energy efficiency class G.

- MO, PO, and VO
- CG - None

3YJ8 4006781

CE Certified: PO and MO Only
UL Listed: PO, MO and CG Only
ETL Listed: VO Only

ES **Lea y guarde todas las instrucciones de seguridad y uso.** Si tiene alguna pregunta, póngase en contacto con su distribuidor local, o bien, visite la sección de soporte en línea en **fxl.com/support**.

ADVERTENCIA – Para reducir el riesgo de INCENDIO O LESIONES:

- Apague/desenchufe la lámpara y espere que se enfríe antes de reemplazarla.
- Las lámparas se CALIENTAN rápidamente al estar encendidas. Haga contacto solo con el interruptor/enchufe al encenderlas.
- No toque la lente caliente, el protector o la carcasa.
- Mantenga las lámparas alejadas de materiales inflamables.
- No toque las lámparas en ningún momento. Use un paño suave. La grasa de la piel puede dañar la lámpara.
- No opere el accesorio de la luminaria si hay un protector faltante o dañado.

ADVERTENCIA – Riesgo de descarga eléctrica

- Se puede instalar a menos de 1,5 m de una piscina, spa o fuente cuando se utiliza con un transformador con clasificación UL 379.
- Una luminaria no se debe usar con lámparas de halógeno y tungsteno, a menos que la luminaria esté diseñada para tales lámparas.
- La conexión de alimentación y los componentes eléctricos se ubican por encima del nivel del suelo, excepto el cable secundario que es adecuado para ubicaciones húmedas.

EL CABLE DE BAJO VOLTAJE DEBE CUMPLIR CON LO SIGUIENTE:

- Protegerse por medio del tendido cerca de la luminaria o el accesorio, o bien, junto a una edificación, como una casa o plataforma.
- No enterrarse a más de 152 mm con el fin de conectarlo al cable principal de bajo voltaje.
- Recortar su longitud de manera que quede conectado a un conector a menos de 152 mm de una edificación, luminaria o accesorio.

Consulte las características eléctricas en el marcado del producto.

INDUSTRIAS HUNTER S DE RL DE CV
NORDIKA 8615 LA JOYA TIJUANA
BAJA CALIFORNIA 22640
+52 664 903 1300

FR **Merci de lire et conserver les instructions de sécurité et d'utilisation.** Pour toutes questions, veuillez contacter votre distributeur ou rendez-vous sur notre site d'assistance en ligne : **fxl.com/support**.

PRÉCAUTIONS – Pour minimiser le risque d'INCENDIE OU DE BLESSURES :

- Éteignez/débranchez et laissez refroidir la lampe, avant de la remplacer.
- La lampe CHAUFFE rapidement. Au moment d'allumer, touchez uniquement l'interrupteur/la prise.
- Ne touchez pas la lentille chaude.
- Tenez la lampe à l'écart de matériaux inflammables.
- Ne touchez jamais la lampe. Utilisez un chiffon doux. Le sébum de la peau peut endommager la lampe.
- N'utilisez pas un luminaire dont l'écran est manquant ou endommagé.

PRÉCAUTIONS – Risque d'électrocution

- Peut être installé à moins de 1,5 m d'une piscine, d'un spa ou d'une fontaine lorsqu'utilisé avec un transformateur homologué UL 379.
- Ne pas utiliser de lampes tungstène-halogène, sauf si le luminaire est spécifiquement conçu pour de telles lampes.
- Le raccord d'alimentation et les composants électriques se trouvent au-dessus du sol, hormis le câble secondaire qui est adapté aux emplacements humides.

LE CÂBLE BASSE TENSION :

- Doit être protégé par acheminement à proximité immédiate du luminaire ou de l'équipement, ou près d'une structure construite, telle une maison ou une terrasse en bois.
- Ne doit pas être enterré, à l'exception d'une partie du câble inférieure à 152 mm, pour permettre de le raccorder au câble basse tension principal.
- Doit être coupé de sorte qu'ils soit raccordé à un raccord situé à moins de 152 mm d'un bâtiment, un luminaire ou un équipement.

DE **Lesen Sie bitte die Sicherheits-** und Gebrauchsanweisungen und bewahren Sie diese auf. Wenn Sie Fragen haben, wenden Sie sich an Ihren Händler vor Ort oder besuchen Sie den Support-Bereich online unter **fxl.com/support**.

WARNUNG – Zur Verringerung des Risikos von FEUER ODER PERSONENSCHÄDEN:

- Schalten Sie die Leuchte aus bzw. ziehen Sie den Stecker und lassen Sie die Lampe abkühlen, bevor Sie diese wechseln.
- Die Lampe wird schnell HEIß. Fassen Sie beim Einschalten nur den Schalter/Stecker an.
- Berühren Sie keine heißen Linsen, Schutzvorrichtungen oder Gehäuse.
- Halten Sie die Lampe von brennbaren Materialien fern.
- Berühren Sie die Lampe zu keinem Zeitpunkt. Verwenden Sie ein weiches Tuch. Hautfett kann die Lampe beschädigen.
- Betreiben Sie den Leuchtenanschluss nicht mit einer fehlenden oder beschädigten Abschirmung.

WARNUNG – Risiko eines elektrischen Schlags

- Kann bei Verwendung eines UL-379-zertifizierten Transformators in einem Abstand von weniger als 1,5 m zu einem Schwimmbecken, Whirlpool oder Brunnen installiert werden.
- Eine Leuchte darf keine Halogenlampen aus Wolfram verwenden, es sei denn, die Leuchte ist für diese Lampen gekennzeichnet.
- Der Netzanschluss und die elektrischen Komponenten befinden sich überirdisch, mit Ausnahme des Sekundärkabels, das für feuchte Standorte geeignet ist.

NIEDERSPANNUNGSKABEL:

- Müssen geschützt werden, indem sie in der Nähe der Leuchte oder des Anschlusses oder neben einer baulichen Struktur wie einem Haus oder einer Terrasse verlegt werden.
- Dürfen zum Anschluss an das Hauptniederspannungskabel nicht eingegraben werden, außer für maximal 152 mm cable.
- Müssen eine solche Länge haben, dass sie innerhalb von 152 mm von einer Gebäudestruktur, einer Leuchte oder einem Anschluss mit einem Kabelverbinder verbunden werden.

RU **Прочтите и сохраните все указания по технике безопасности и инструкции по применению.** При возникновении вопросов обращайтесь к местному дистрибьютору или посетите раздел онлайн-поддержки, перейдя по ссылке **fxl.com/support**.

ВНИМАНИЕ! ЧТОБЫ СНИЗИТЬ РИСК ВОЗНИКНОВЕНИЯ ПОЖАРА ИЛИ ПОЛУЧЕНИЯ ТРАВМ:

- Перед заменой лампы выключите/отсоедините светильник от силовой сети и дайте ему остыть.
- Лампа очень быстро НАГРЕВАЕТСЯ. При включении светильника следует держаться только за выключатель/штекер.
- Не прикасайтесь к горячей линзе, защитному устройству или корпусу.
- Держите лампу подальше от горючих материалов.
- Ни в коем случае не прикасайтесь к лампе. Используйте мягкую ткань. Жировые выделения на коже могут стать причиной повреждения лампы.
- Не используйте крепление светильника, защитный экран которого отсутствует или поврежден.

ВНИМАНИЕ! РИСК ПОРАЖЕНИЯ ЭЛЕКТРИЧЕСКИМ ТОКОМ

- Допускается установка на расстоянии менее 1,5 м от бассейна, спа или фонтана при условии использования трансформатора, соответствующего требованиям стандарта UL 379.
- Запрещается использовать в светильнике лампы накаливания, если на нем отсутствует маркировка, указывающая на возможность их применения.
- Силовые соединение и электрические компоненты должны быть расположены над поверхностью земли. Исключение составляет дополнительный кабель, рассчитанный на прокладку в условиях повышенной влажности.

ТРЕБОВАНИЯ К ПРОКЛАДКЕ КАБЕЛЯ НИЗКОГО НАПРЯЖЕНИЯ:

- Чтобы обеспечить надлежащую защиту кабеля, его нужно прокладывать в непосредственной близости от светильника (силового соединения) или рядом со зданием/конструкцией (например, домом или столешницей).
- Кабель нельзя прокладывать в земле. Исключение составляют места соединения с главным кабелем низкого напряжения — при этом максимальная глубина не должна превышать 152 мм.
- Длину кабеля необходимо выбирать таким образом, чтобы после обрезки расстояние от здания, светильника или места соединения проводки до разъема не превышало 152 мм.

LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L022312106-01

Reference: L022312106
Issue Date: 3/07/2023
Amendment: 5/03/2023

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street,San Marcos, CA 92078

Model Number: MO-1LED-RD-FW / rECH8-1LED-RD-WT

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 3/3/23

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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NVLAP TESTING
NVLAP LAB CODE 200927-0

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	MO-1LED-RD-FW / rECH8-1LED-RD-WT
Driver Model Number:	N/A

Test Summary	
Total Lumens:	95.00
Efficacy:	47.59
Color Redering Index:	83.8
Correlated Color Temperature:	2683
Input Voltage (VAC/60Hz):	12.01
Input Current (Amp):	0.2126
Input Power (W):	2.00
Input Power Factor:	0.7821
Current ATHD (%):	59.9%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:40



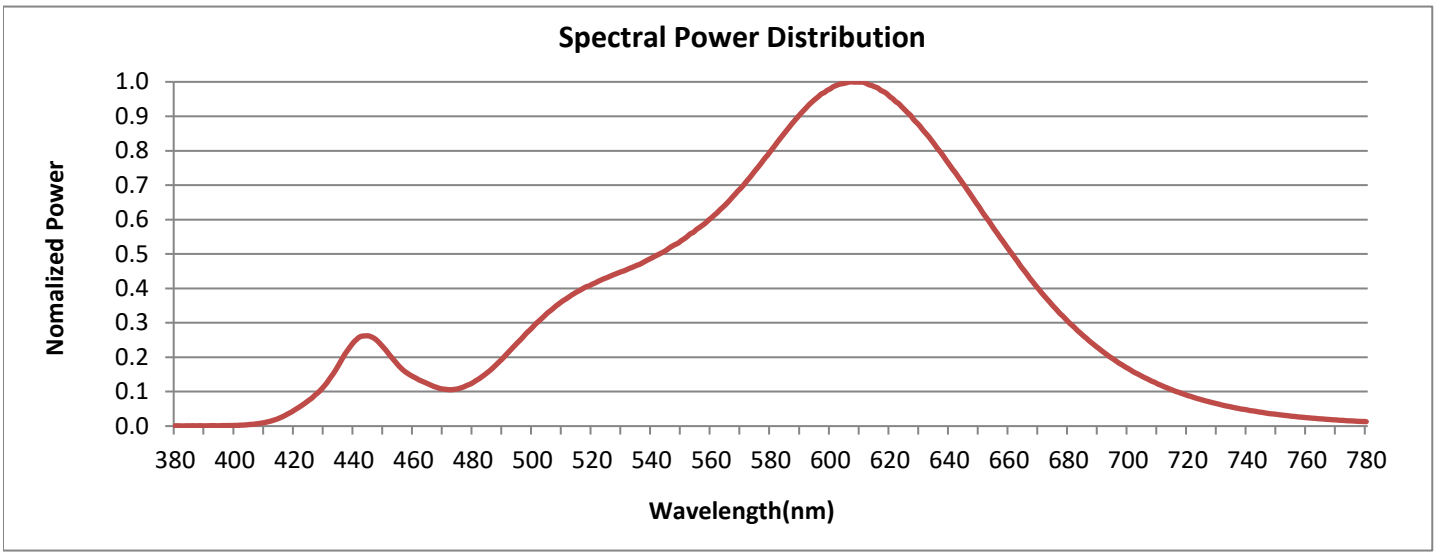


FIG. 1 LUMINAIRE

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www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Colorimetry Test Results

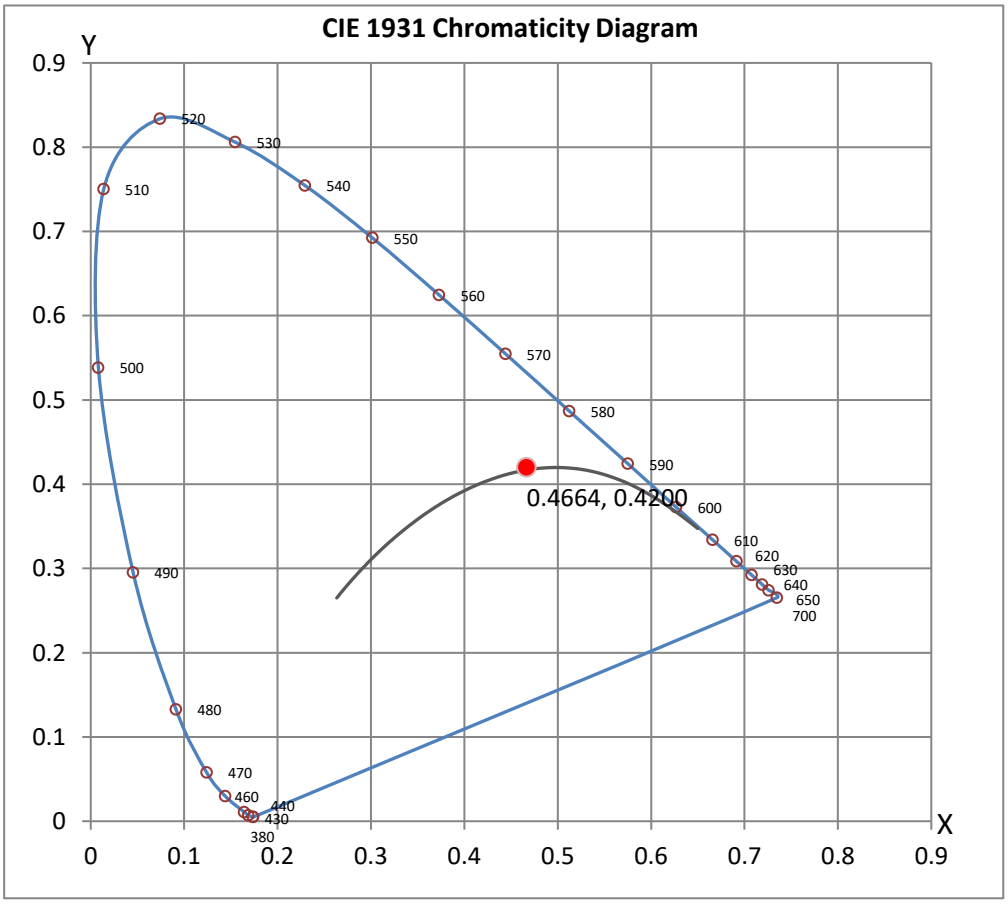


CRI & CCT

x	0.4664
y	0.4200
u'	0.2625
v'	0.5319
CRI	83.80
CCT	2683
Duv	0.00289

R Values

R1	81.54
R2	90.19
R3	98.41
R4	84.04
R5	82.46
R6	90.36
R7	83.86
R8	59.47
R9	10.26
R10	78.95
R11	84.97
R12	78.06
R13	83.25
R14	99.31
R15	72.88



Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : Kunjan Modi

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

LIGHT LABORATORY INC.
8165 E. Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312106-01.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L022312106-01
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 3/6/2023
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] MO-1LED-RD-FW / rECH8-1LED-RD-WT
[LUMINAIRE] Lumiled, 1LED, 2700K, Round Faceplate
[BALLASTCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type IV
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	95
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	48
Total Luminaire Watts	1.997
Ballast Factor	1.00
Upward Waste Light Ratio	0.08
Maximum Candela	100
Maximum Candela Angle	0H 75V
Maximum Candela (<90 Degrees Vertical)	100
Maximum Candela Angle (<90 Degrees Vertical)	0H 75V
Maximum Candela At 90 Degrees Vertical	49 (51.6% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	93 (97.9% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312106-01.IES

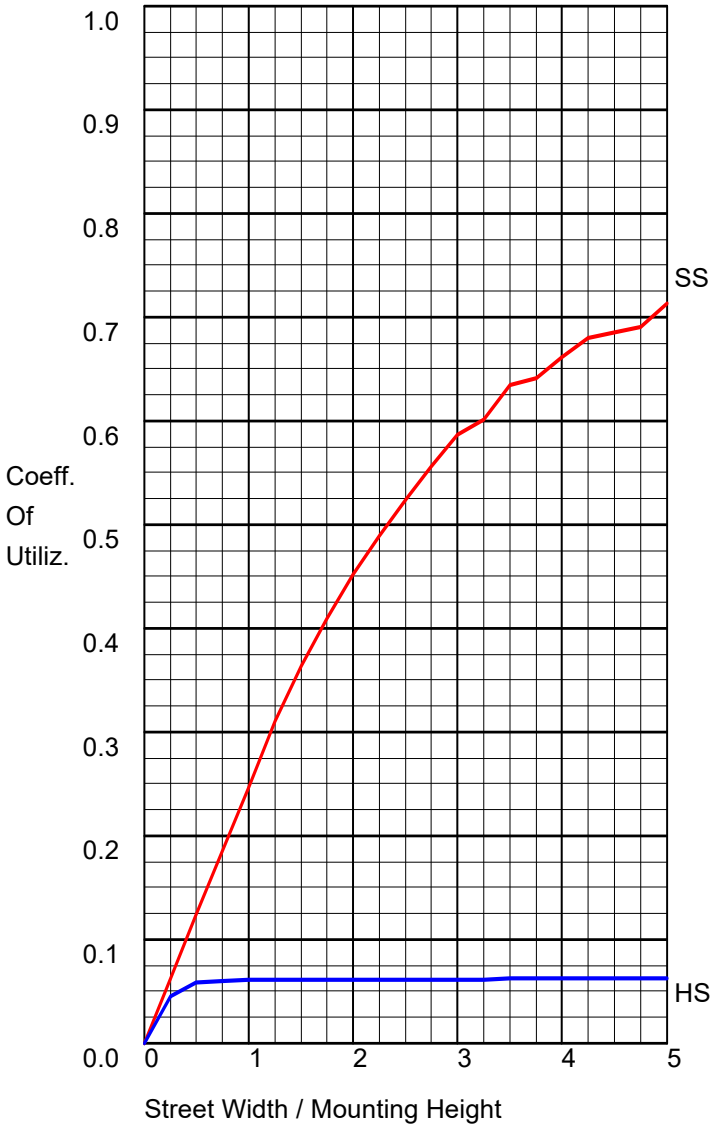
LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	6.4	N.A.	6.8
FM - Front-Medium (30-60)	25.7	N.A.	27.0
FH - Front-High (60-80)	35.2	N.A.	37.0
FVH - Front-Very High (80-90)	14.5	N.A.	15.3
BL - Back-Low (0-30)	2.7	N.A.	2.9
BM - Back-Medium (30-60)	2.2	N.A.	2.3
BH - Back-High (60-80)	0.8	N.A.	0.8
BVH - Back-Very High (80-90)	0.1	N.A.	0.1
UL - Uplight-Low (90-100)	5.6	N.A.	5.9
UH - Uplight-High (100-180)	1.8	N.A.	1.9
Total	95.0	N.A.	100.0
BUG Rating	B0-U1-G1		

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312106-01.IES

COEFFICIENTS OF UTILIZATION



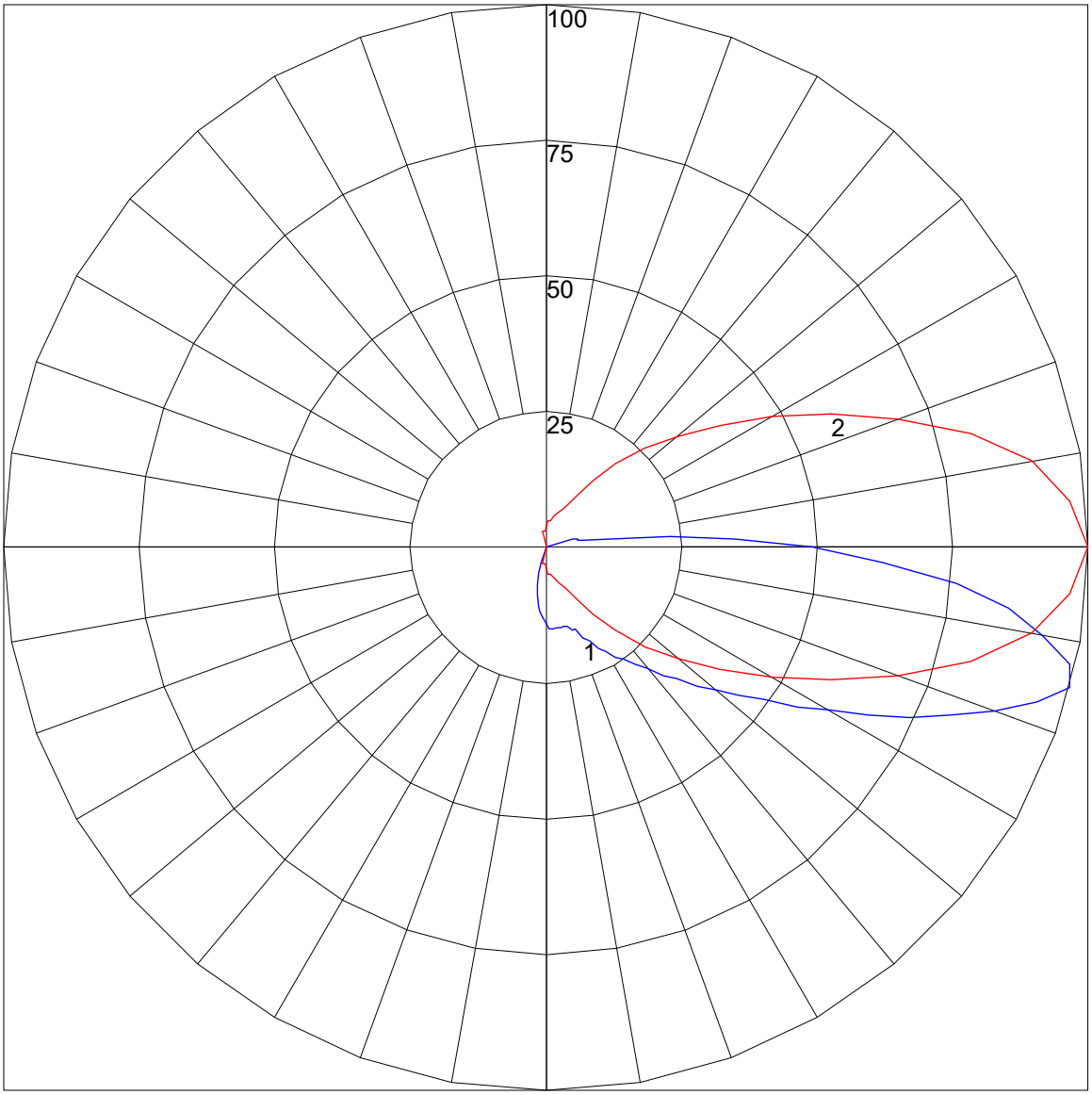
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	81.8	86.0
Downward House Side	5.9	6.2
Downward Total	87.7	92.2
Upward Street Side	7.4	7.8
Upward House Side	0.0	0.0
Upward Total	7.4	7.8
Total Flux	95.1	100.0

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312106-01.IES

POLAR GRAPH

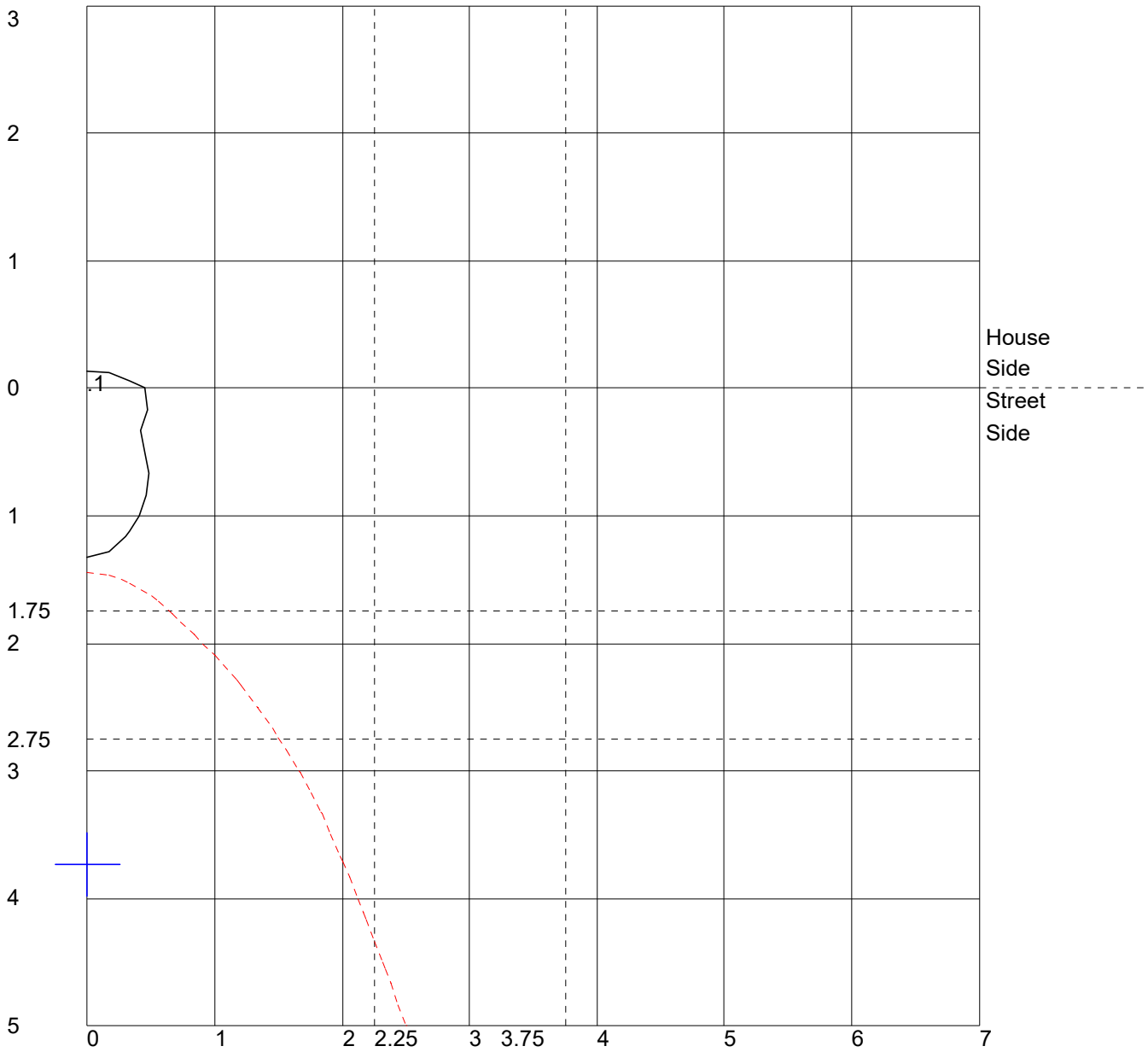


Maximum Candela = 100 Located At Horizontal Angle = 0, Vertical Angle = 75
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (75) (Through Max. Cd.)

Photometric Toolbox (R) Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312106-01.IES

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 10 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

Photometric Toolbox (R) Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L112211318 **Issue Date: 11/22/2022**

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street

Model Number: MO-3LED-WW-FW / rECH8-3LED-WW-WT

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 11/22/22

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	MO-3LED-WW-FW / rECH8-3LED-WW-WT
Driver Model Number:	N/A

Test Summary	
Total Lumens:	87.00
Efficacy:	22.42
Color Redering Index:	86.8
Correlated Color Temperature:	2723
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.3550
Input Power (W):	3.88
Input Power Factor:	0.9116
Current ATHD (%):	39.7%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:40
Total Operating Time (Hours):	1:25

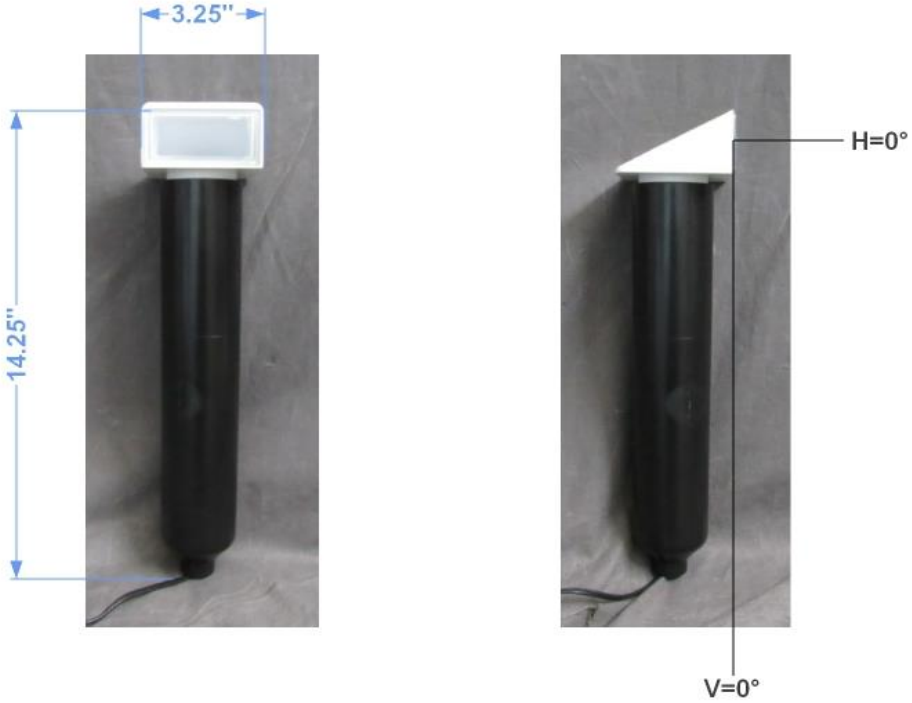


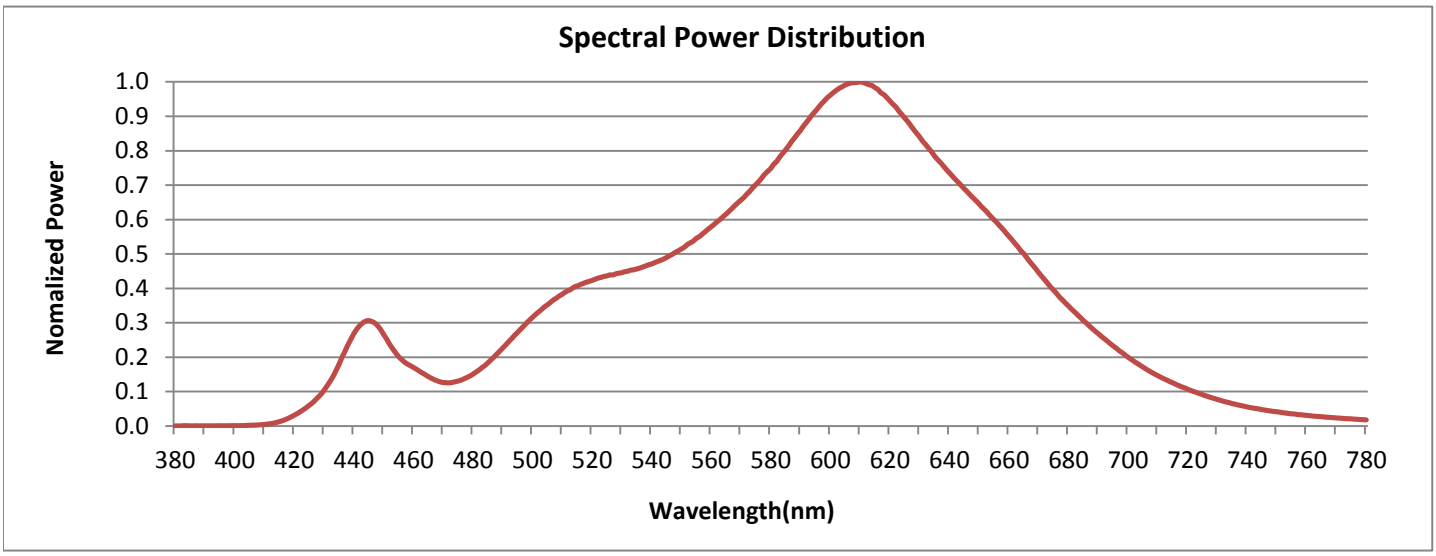
FIG. 1 LUMINAIRE

LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L112211318

NVLAP TESTING
NVLAP LAB CODE 200927-0

Colorimetry Test Results

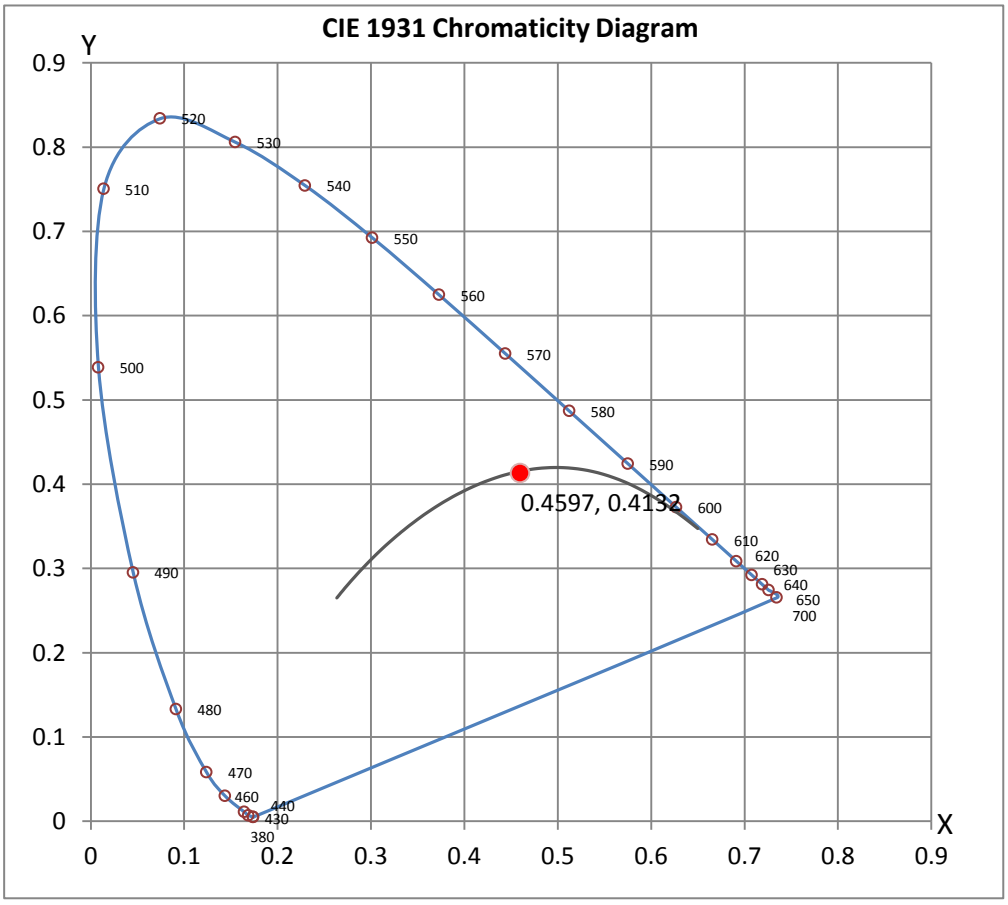


CRI & CCT

x	0.4597
y	0.4132
u'	0.2612
v'	0.5283
CRI	86.80
CCT	2723
Duv	0.00098

R Values

R1	85.81
R2	93.33
R3	97.03
R4	88.01
R5	87.39
R6	95.08
R7	84.51
R8	63.47
R9	20.47
R10	86.27
R11	90.59
R12	86.89
R13	87.60
R14	98.97
R15	77.17



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www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : Kunjan Modi

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

LIGHT LABORATORY INC.
8165 E. Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211318.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L112211318
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 11/22/2022
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] MO-3LED-WW-FW / rECH8-3LED-WW-WT
[LUMINAIRE] Lumiled, 3LED, 2700K, Wall Wash Faceplate
[BALLASTCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type IV
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	87
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	22
Total Luminaire Watts	3.88
Ballast Factor	1.00
Upward Waste Light Ratio	0.52
Maximum Candela	59
Maximum Candela Angle	0H 85V
Maximum Candela (<90 Degrees Vertical)	59
Maximum Candela Angle (<90 Degrees Vertical)	0H 85V
Maximum Candela At 90 Degrees Vertical	58 (66.7% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	59 (67.8% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211318.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

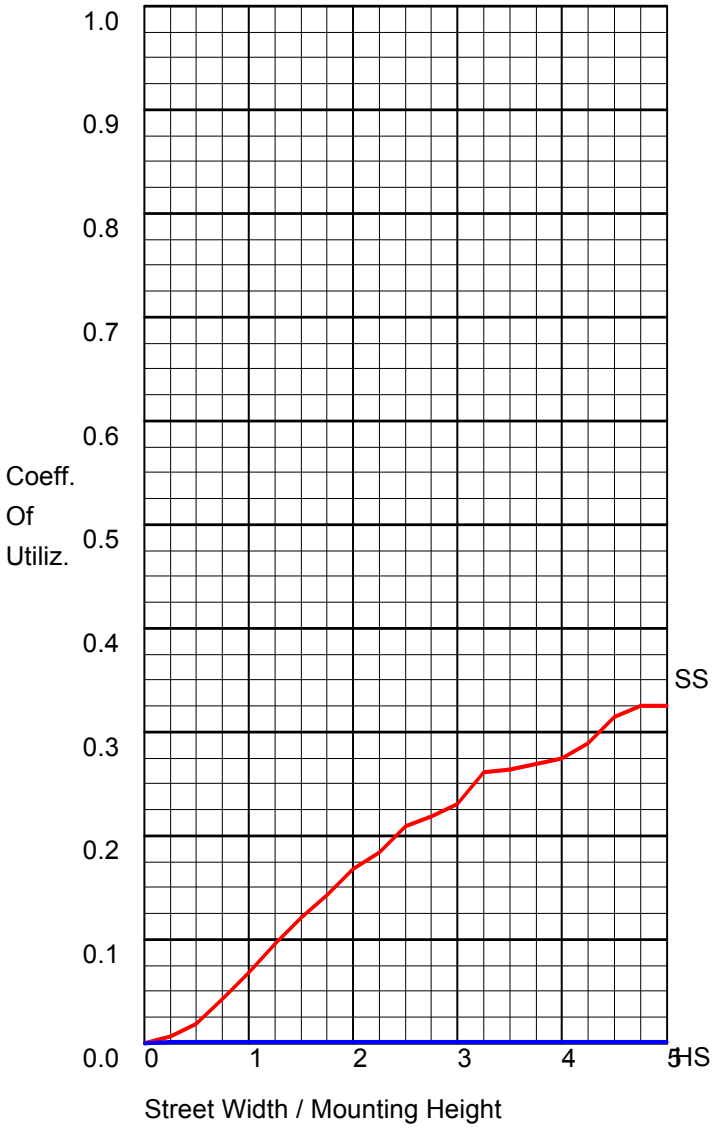
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	0.9	N.A.	1.1
FM - Front-Medium (30-60)	8.9	N.A.	10.2
FH - Front-High (60-80)	17.9	N.A.	20.6
FVH - Front-Very High (80-90)	13.8	N.A.	15.9
BL - Back-Low (0-30)	< 0.05	N.A.	0.0
BM - Back-Medium (30-60)	< 0.05	N.A.	0.1
BH - Back-High (60-80)	< 0.05	N.A.	0.0
BVH - Back-Very High (80-90)	0.0	N.A.	0.0
UL - Uplight-Low (90-100)	13.5	N.A.	15.5
UH - Uplight-High (100-180)	31.7	N.A.	36.6
Total	86.7	N.A.	100.0
BUG Rating	B0-U2-G1		

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211318.IES

COEFFICIENTS OF UTILIZATION



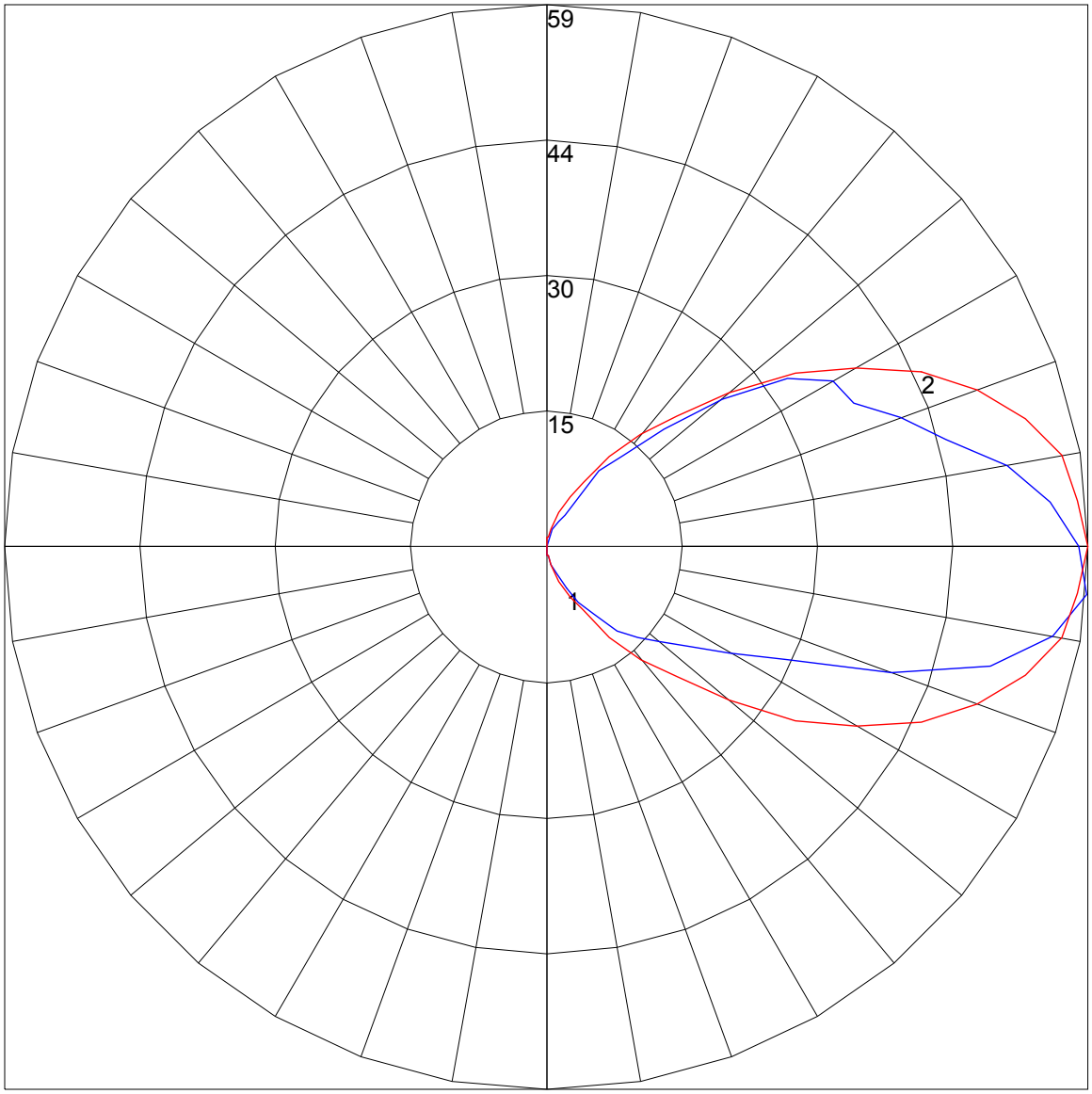
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	41.5	47.8
Downward House Side	0.1	0.1
Downward Total	41.6	48.0
Upward Street Side	45.1	52.0
Upward House Side	0.0	0.0
Upward Total	45.1	52.0
Total Flux	86.7	100.0

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211318.IES

POLAR GRAPH

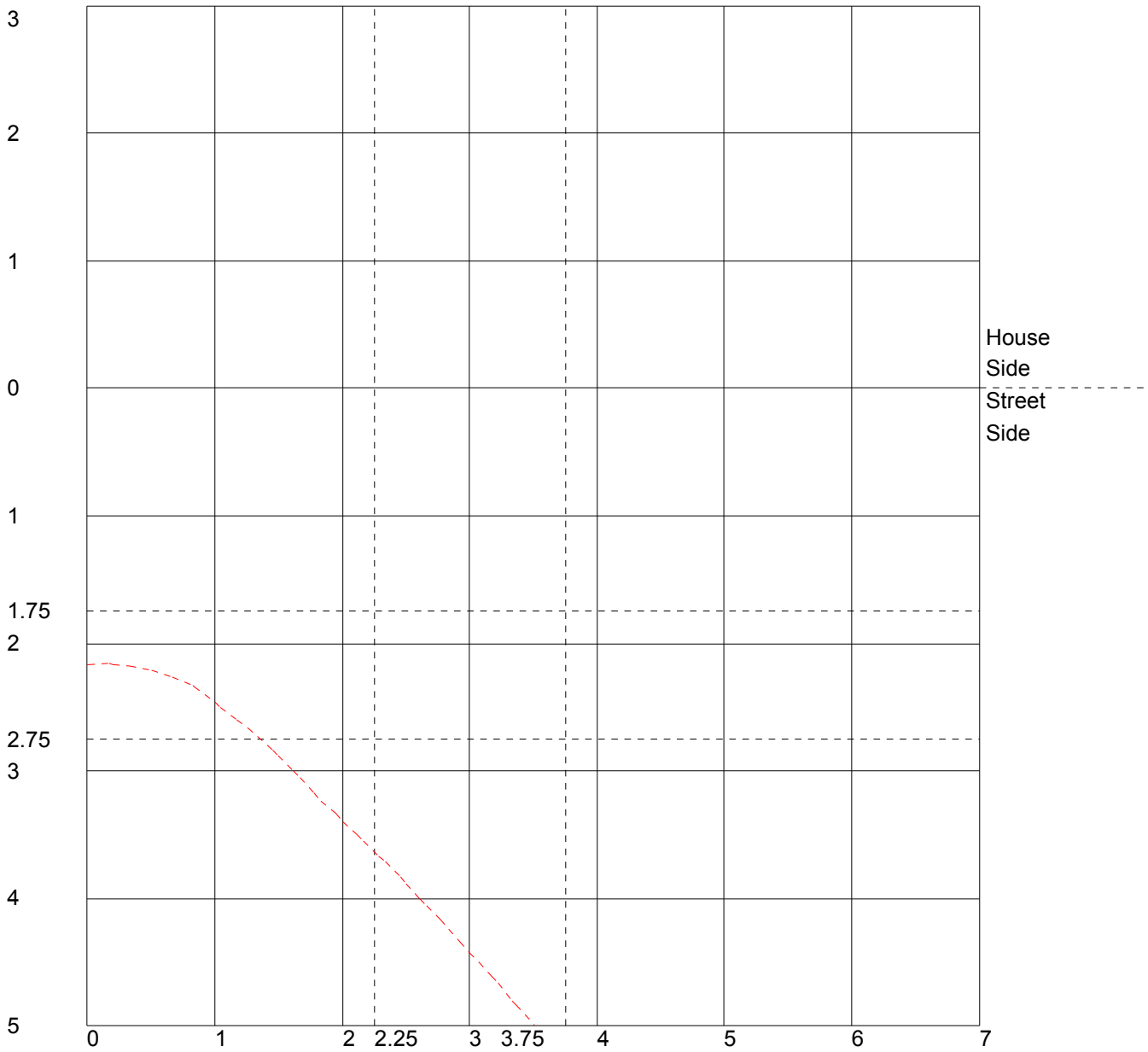


Maximum Candela = 59 Located At Horizontal Angle = 0, Vertical Angle = 85
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (85) (Through Max. Cd.)

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211318.IES

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 20 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

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www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L022312107-01

Reference: L022312107
Issue Date: 3/07/2023
Amendment: 5/03/2023

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street,San Marcos, CA 92078

Model Number: MO-3LED-RD-FW / rECH8-3LED-RD-WT

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 3/3/23

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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NVLAP TESTING
NVLAP LAB CODE 200927-0

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	MO-3LED-RD-FW / rECH8-3LED-RD-WT
Driver Model Number:	N/A

Test Summary	
Total Lumens:	221.00
Efficacy:	57.14
Color Redering Index:	82.5
Correlated Color Temperature:	2620
Input Voltage (VAC/60Hz):	12.01
Input Current (Amp):	0.3538
Input Power (W):	3.87
Input Power Factor:	0.9104
Current ATHD (%):	39.8%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:20
Total Operating Time (Hours):	2:15

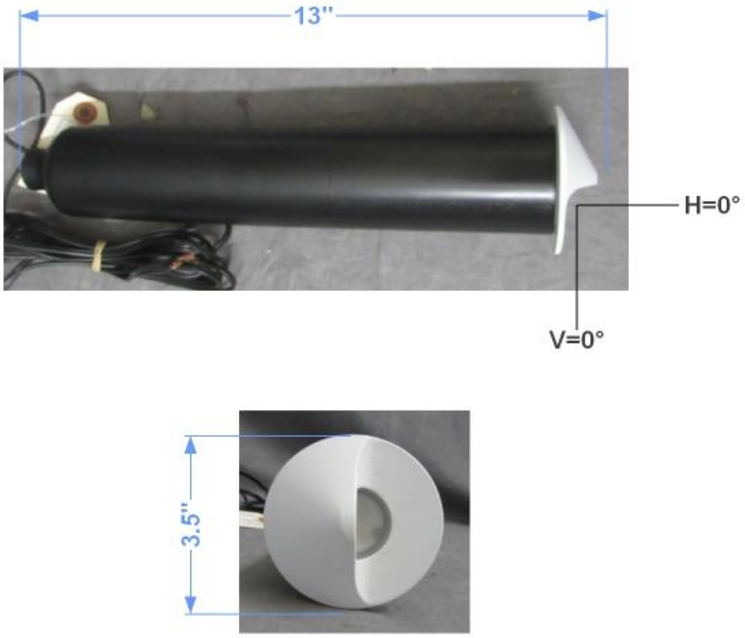
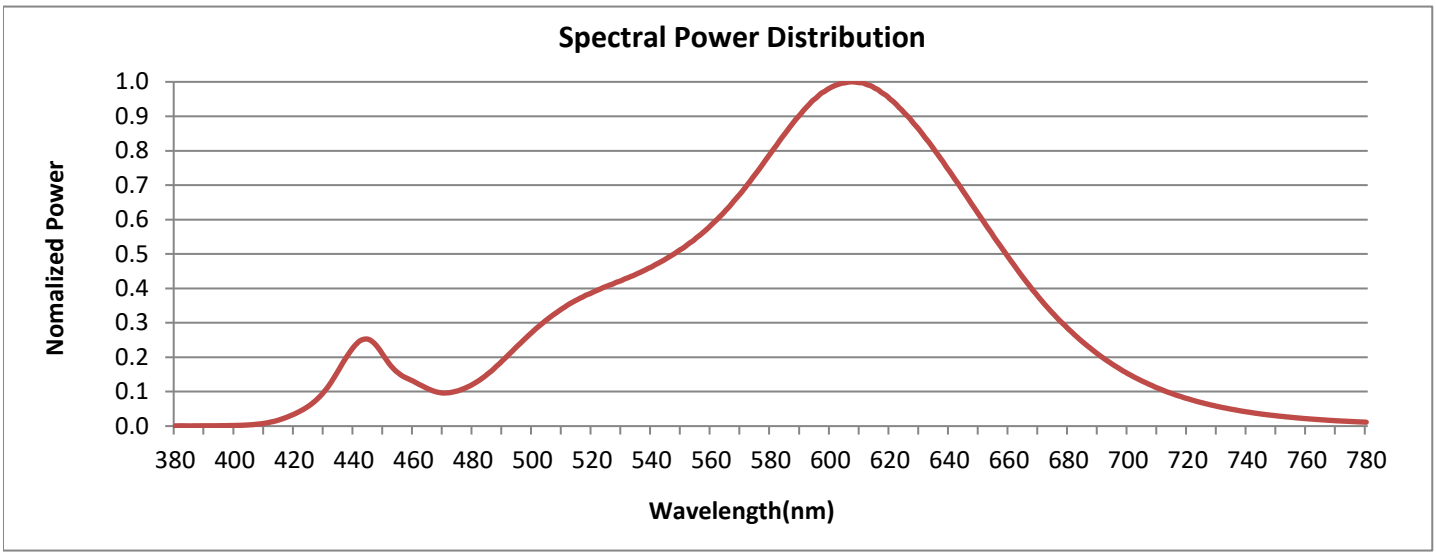


FIG. 1 LUMINAIRE

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www.lightlaboratory.com

Report No: L022312107-01
NVLAP TESTING
NVLAP LAB CODE 200927-0

Colorimetry Test Results

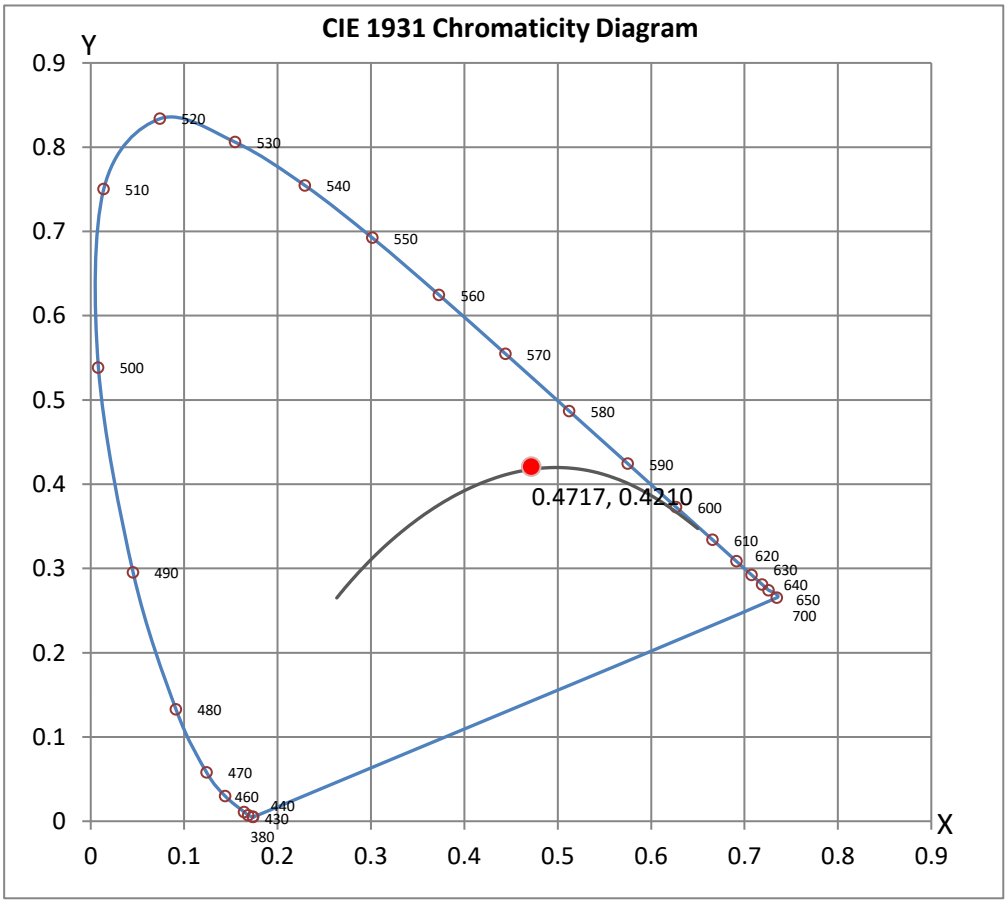


CRI & CCT

x	0.4717
y	0.4210
u'	0.2654
v'	0.5330
CRI	82.50
CCT	2620
Duv	0.00287

R Values

R1	80.18
R2	90.00
R3	97.58
R4	82.43
R5	81.29
R6	90.49
R7	82.24
R8	56.18
R9	4.33
R10	78.87
R11	83.28
R12	78.20
R13	82.17
R14	99.20
R15	70.96



Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

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Report Prepared by : Kunjan Modi

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

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www.lightlaboratory.com

Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312107-01.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L022312107-01
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 3/6/2023
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] MO-3LED-RD-FW / rECH8-3LED-RD-WT
[LUMINAIRE] Lumiled, 3LED, 2700K, Round Faceplate
[BALLASTCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type IV
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	221
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	57
Total Luminaire Watts	3.87
Ballast Factor	1.00
Upward Waste Light Ratio	0.12
Maximum Candela	187
Maximum Candela Angle	0H 75V
Maximum Candela (<90 Degrees Vertical)	187
Maximum Candela Angle (<90 Degrees Vertical)	0H 75V
Maximum Candela At 90 Degrees Vertical	113 (51.1% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	181 (81.9% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312107-01.IES

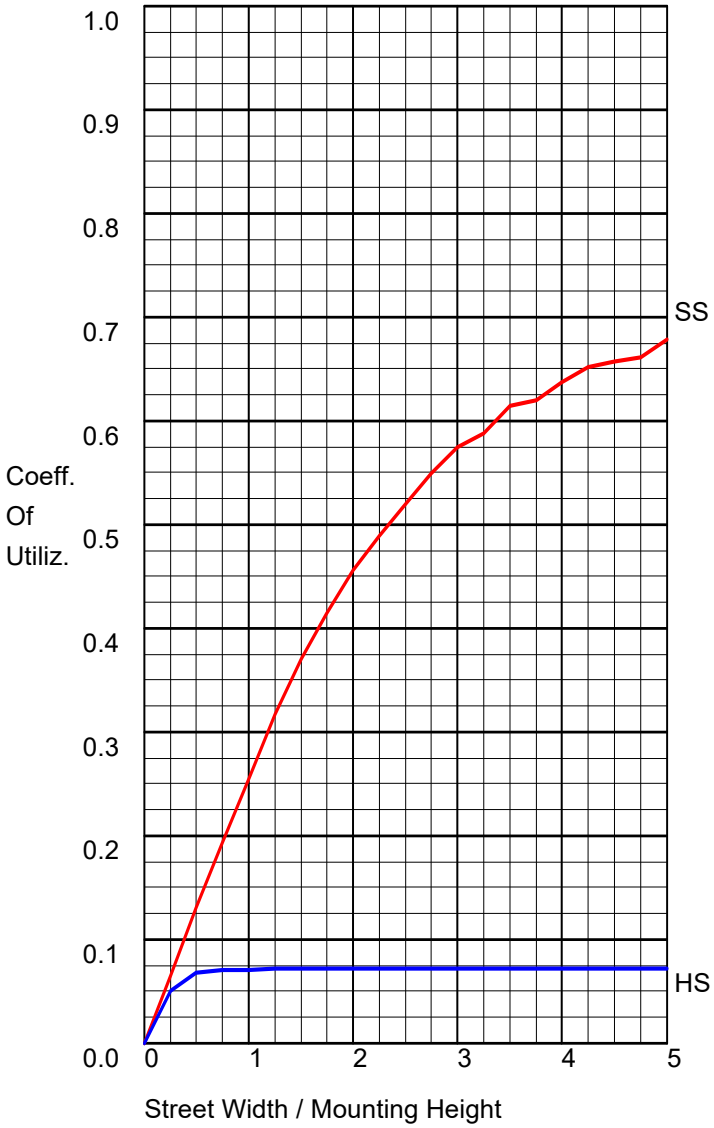
LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	16.2	N.A.	7.3
FM - Front-Medium (30-60)	60.5	N.A.	27.3
FH - Front-High (60-80)	72.2	N.A.	32.6
FVH - Front-Very High (80-90)	30.4	N.A.	13.7
BL - Back-Low (0-30)	7.7	N.A.	3.5
BM - Back-Medium (30-60)	6.1	N.A.	2.7
BH - Back-High (60-80)	1.9	N.A.	0.9
BVH - Back-Very High (80-90)	0.3	N.A.	0.1
UL - Uplight-Low (90-100)	14.6	N.A.	6.6
UH - Uplight-High (100-180)	11.5	N.A.	5.2
Total	221.4	N.A.	100.0
BUG Rating	B0-U2-G1		

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Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312107-01.IES

COEFFICIENTS OF UTILIZATION



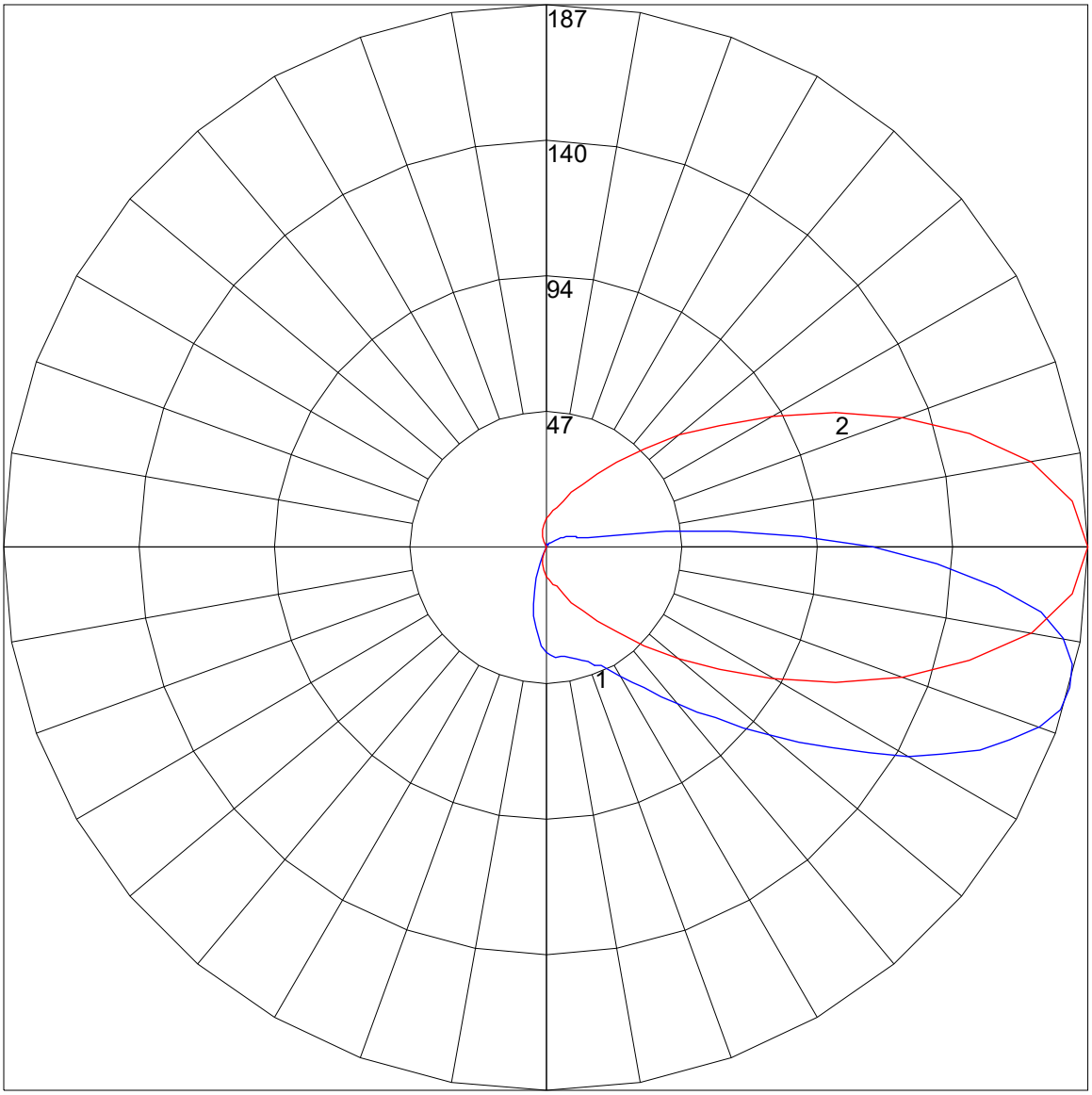
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	179.4	81.0
Downward House Side	16.0	7.2
Downward Total	195.4	88.2
Upward Street Side	24.9	11.2
Upward House Side	1.2	0.5
Upward Total	26.1	11.8
Total Flux	221.5	100.0

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Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312107-01.IES

POLAR GRAPH

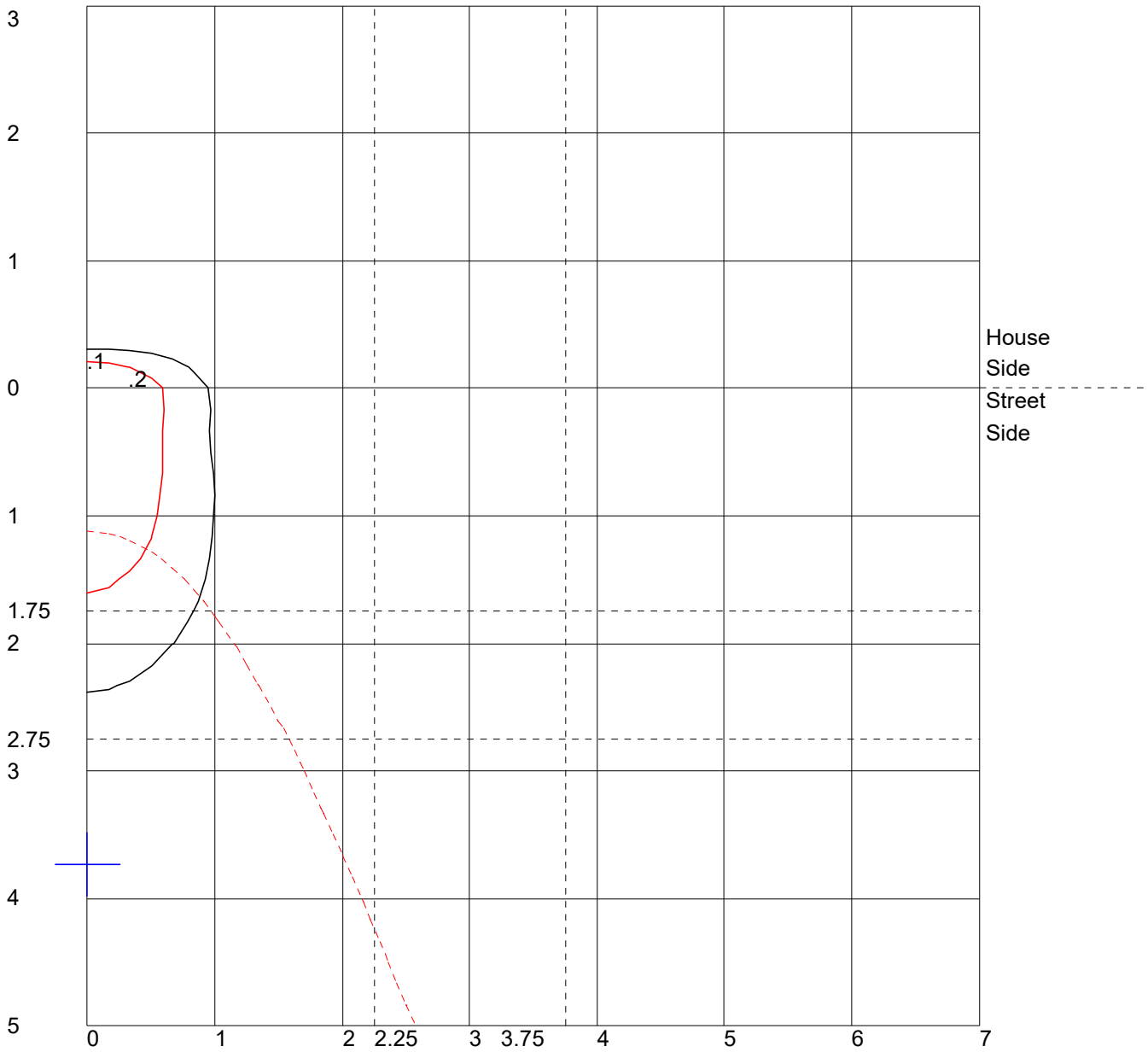


Maximum Candela = 187 Located At Horizontal Angle = 0, Vertical Angle = 75
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (75) (Through Max. Cd.)

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L022312107-01.IES

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 10 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

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Results derived from content of manufacturers photometric file.

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www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L022312115 **Issue Date: 3/7/2023**

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street, San Marcos, CA 92078

Model Number: MO-3LED-ST-FW / rECH8-3LED-ST-WT

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 3/3/23

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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NVLAP TESTING
NVLAP LAB CODE 200927-0

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	MO-3LED-ST-FW / rECH8-3LED-ST-WT
Driver Model Number:	N/A

Test Summary	
Total Lumens:	350.00
Efficacy:	90.13
Color Redering Index:	82.7
Correlated Color Temperature:	2642
Input Voltage (VAC/60Hz):	12.01
Input Current (Amp):	0.3553
Input Power (W):	3.88
Input Power Factor:	0.9106
Current ATHD (%):	39.8%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	0:55

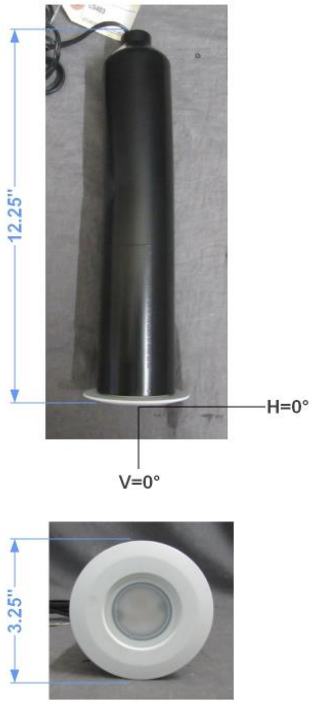


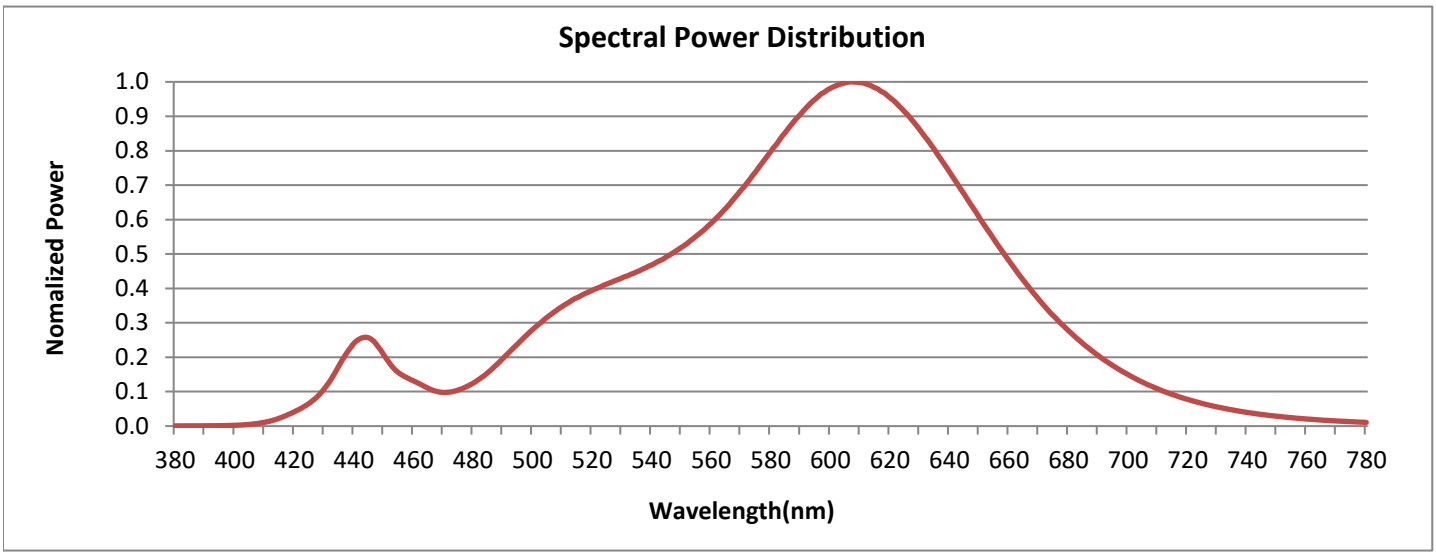
FIG. 1 LUMINAIRE

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Report No: L022312115

NVLAP TESTING
NVLAP LAB CODE 200927-0

Colorimetry Test Results

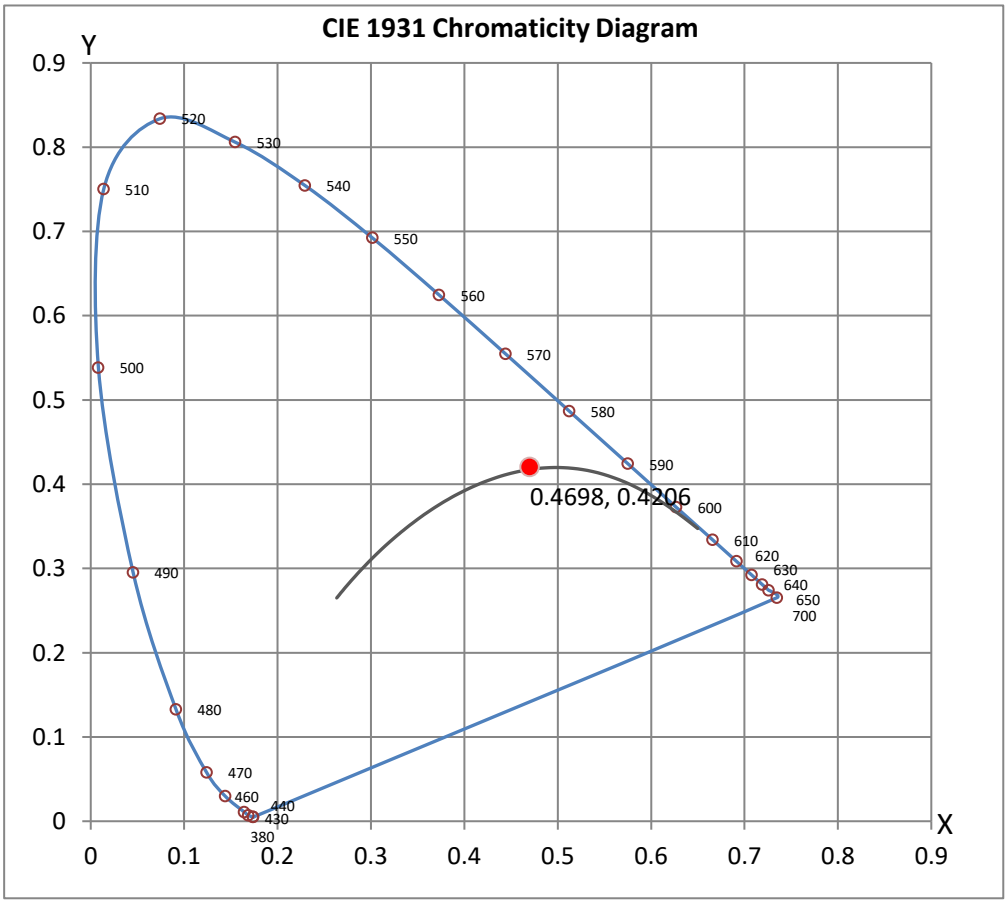


CRI & CCT

x	0.4698
y	0.4206
u'	0.2644
v'	0.5326
CRI	82.70
CCT	2642
Duv	0.00286

R Values

R1	80.32
R2	89.99
R3	97.67
R4	82.65
R5	81.44
R6	90.46
R7	82.42
R8	56.51
R9	4.68
R10	78.83
R11	83.52
R12	78.35
R13	82.25
R14	99.23
R15	71.14



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NVLAP TESTING
NVLAP LAB CODE 200927-0

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : Kunjan Modi

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

LIGHT LABORATORY INC.
8165 E. Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L022312115.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L022312115
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 3/3/2023
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] MO-3LED-ST-FW / rECH8-3LED-ST-WT
[LUMINAIRE] Lumiled, 3LED, 2700K, Spot Faceplate
[BALLASTCAT]
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

CHARACTERISTICS

NEMA Type	6 H x 6 V
Maximum Candela	299
Maximum Candela Angle	-1H 0V
Horizontal Beam Angle (50%)	53.1
Vertical Beam Angle (50%)	53.1
Horizontal Field Angle (10%)	120.8
Vertical Field Angle (10%)	120.8
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	138
Beam Efficiency	N.A.
Field Lumens	313
Field Efficiency	N.A.
Spill Lumens	37
Luminaire Lumens	350
Total Efficiency	N.A.
Total Luminaire Watts	3.88
Ballast Factor	1.00

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Results derived from content of manufacturers photometric file.

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L022312115.IES

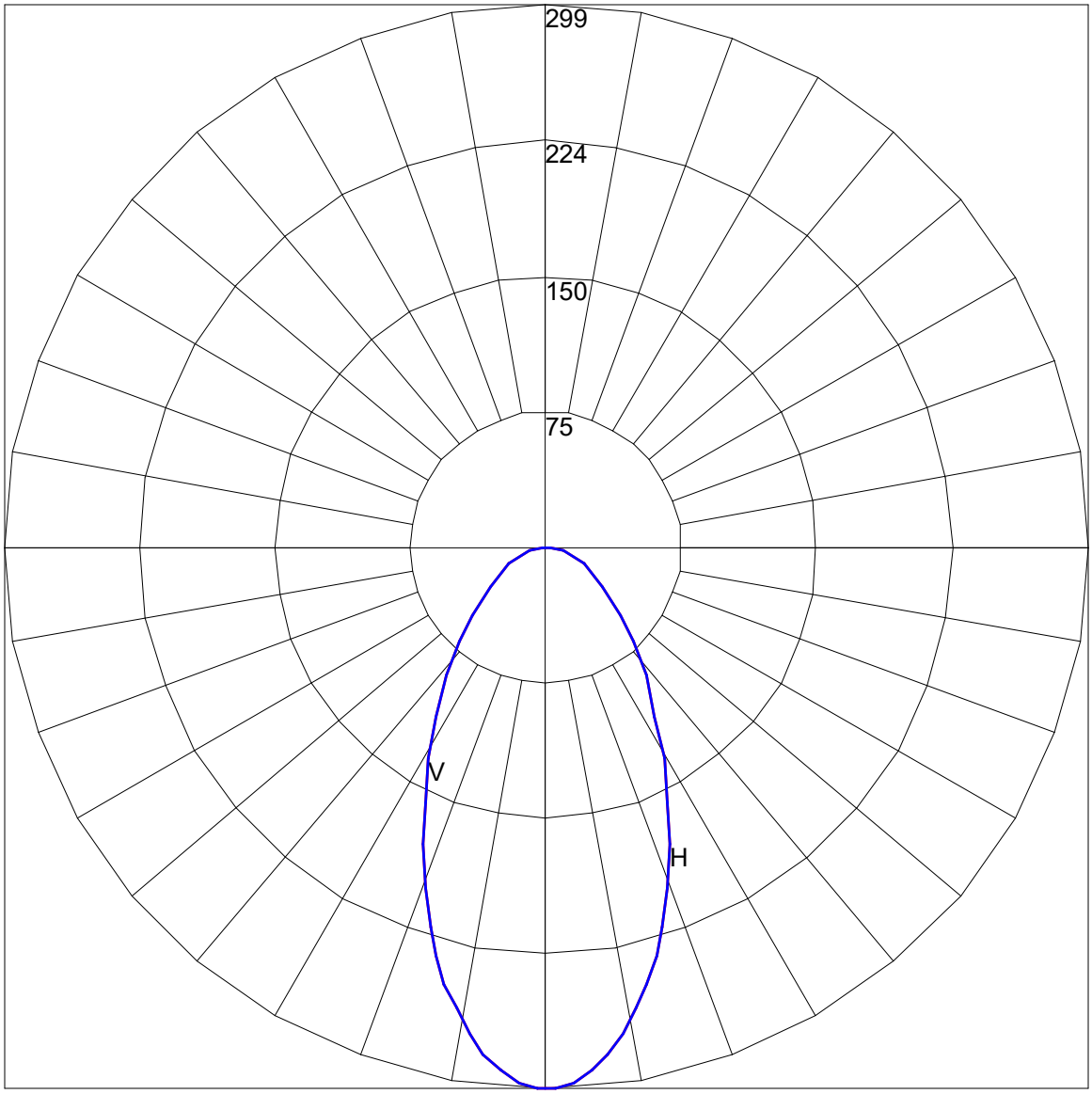
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	2	85	2
75	10	75	10
65	23	65	23
55	38	55	38
47.5	56	47.5	56
42.5	71	42.5	71
37.5	90	37.5	90
33	111	33	111
29	134	29	134
25.5	156	25.5	156
22.5	177	22.5	177
19.5	200	19.5	200
17	219	17	219
15	234	15	234
13	248	13	248
11	260	11	260
9	272	9	272
7	283	7	283
5	290	5	290
3	296	3	296
1	299	1	299
0	299	0	299
-1	299	-1	299
-3	296	-3	296
-5	290	-5	290
-7	283	-7	283
-9	272	-9	272
-11	260	-11	260
-13	248	-13	248
-15	234	-15	234
-17	219	-17	219
-19.5	200	-19.5	200
-22.5	177	-22.5	177
-25.5	156	-25.5	156
-29	134	-29	134
-33	111	-33	111
-37.5	90	-37.5	90
-42.5	71	-42.5	71
-47.5	56	-47.5	56
-55	38	-55	38
-65	23	-65	23
-75	10	-75	10
-85	2	-85	2
-90	0	-90	0

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Results derived from content of manufacturers photometric file.

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L022312115.IES

AXIAL CANDELA DISPLAY

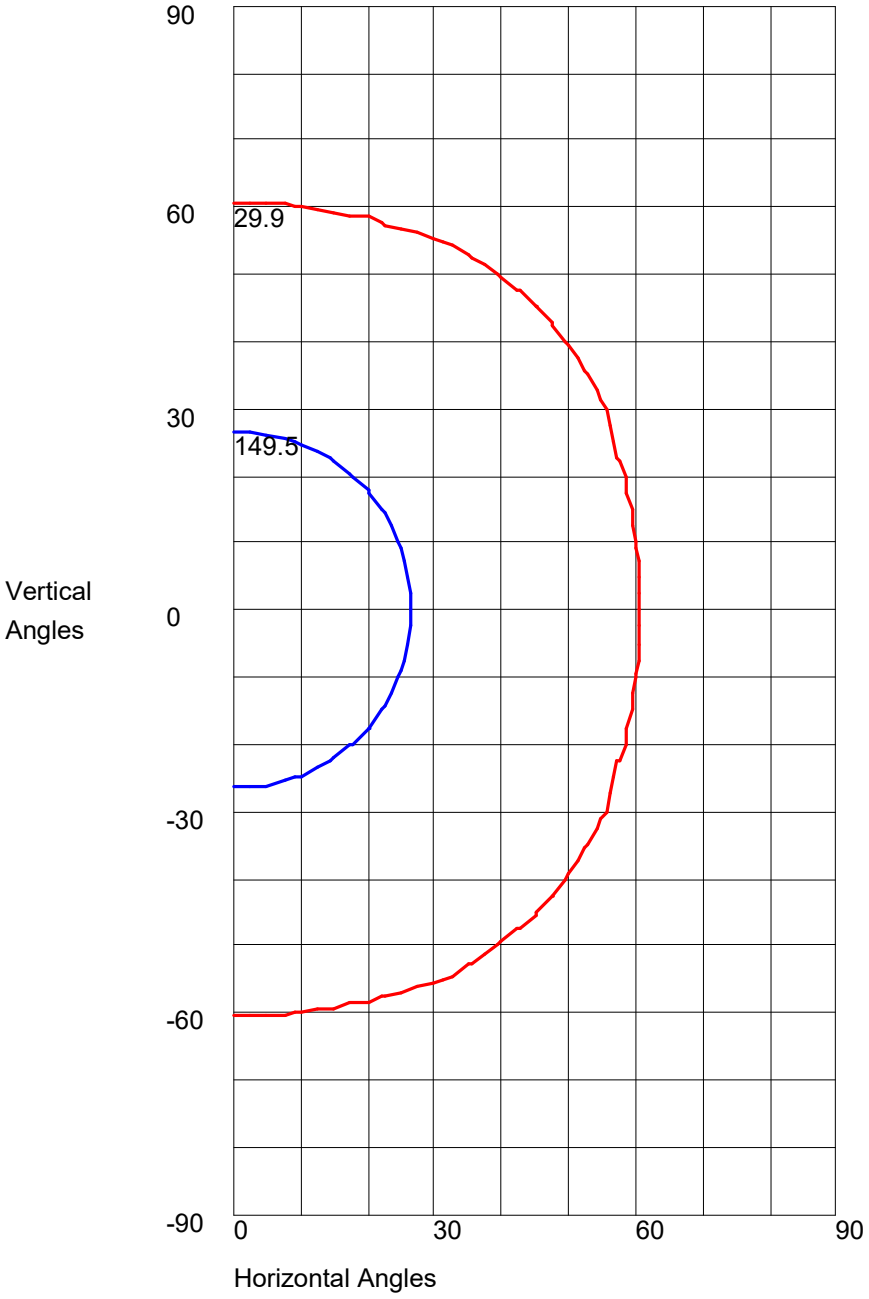


Maximum Candela = 299 Located At Horizontal Angle =-1, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L022312115.IES

ISOCANDELA CURVES



Maximum Candela = 299 Located At Horizontal Angle =-1, Vertical Angle = 0
50% Maximum Candela = 149.5
10% Maximum Candela = 29.9

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

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NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L112211317 **Issue Date: 11/22/2022**

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street

Model Number: MO-1LED-WW-FW / rECH8-1LED-WW-WT

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 11/22/22

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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NVLAP TESTING
NVLAP LAB CODE 200927-0

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	MO-1LED-WW-FW / rECH8-1LED-WW-WT
Driver Model Number:	N/A

Test Summary	
Total Lumens:	34.00
Efficacy:	18.80
Color Redering Index:	86.4
Correlated Color Temperature:	2760
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.1775
Input Power (W):	1.81
Input Power Factor:	0.8486
Current ATHD (%):	50.5%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:45

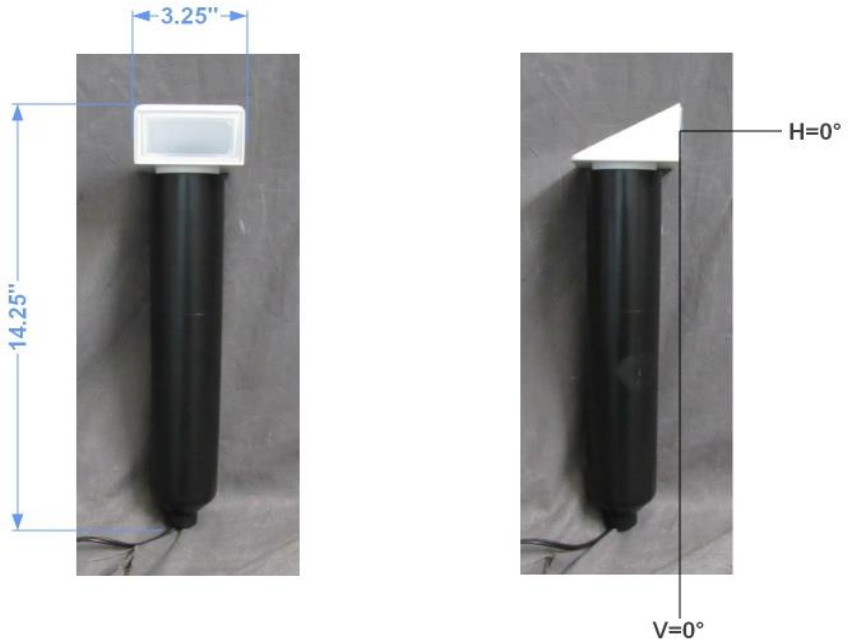
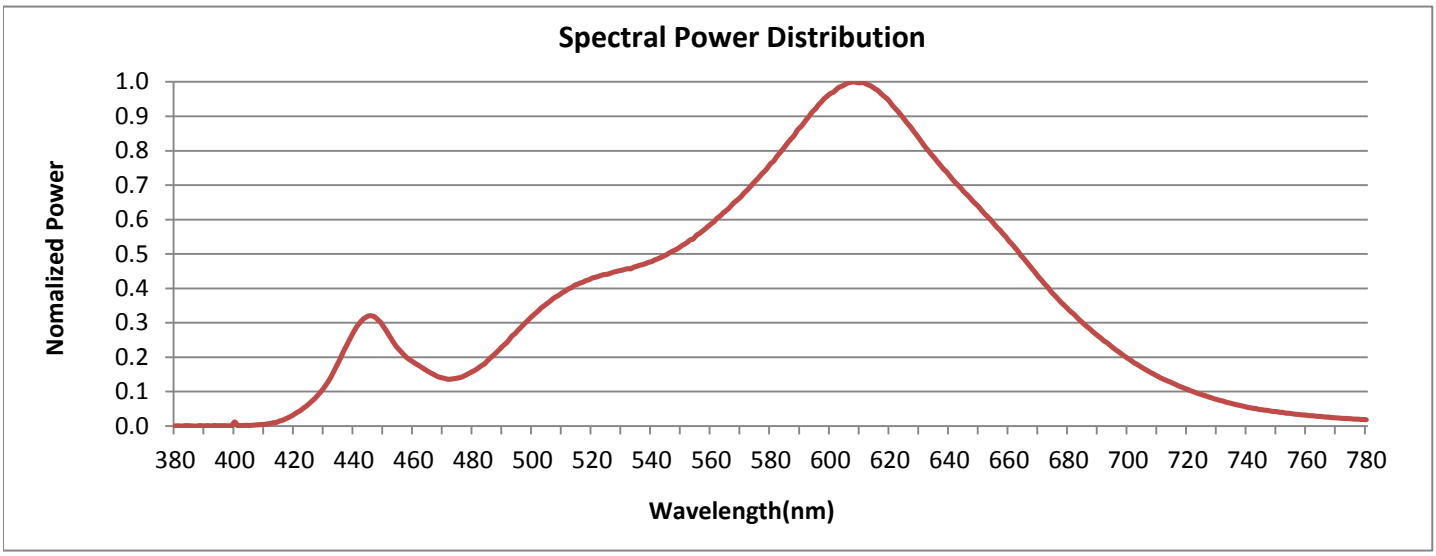


FIG. 1 LUMINAIRE

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Report No: L112211317
NVLAP TESTING
NVLAP LAB CODE 200927-0

Colorimetry Test Results

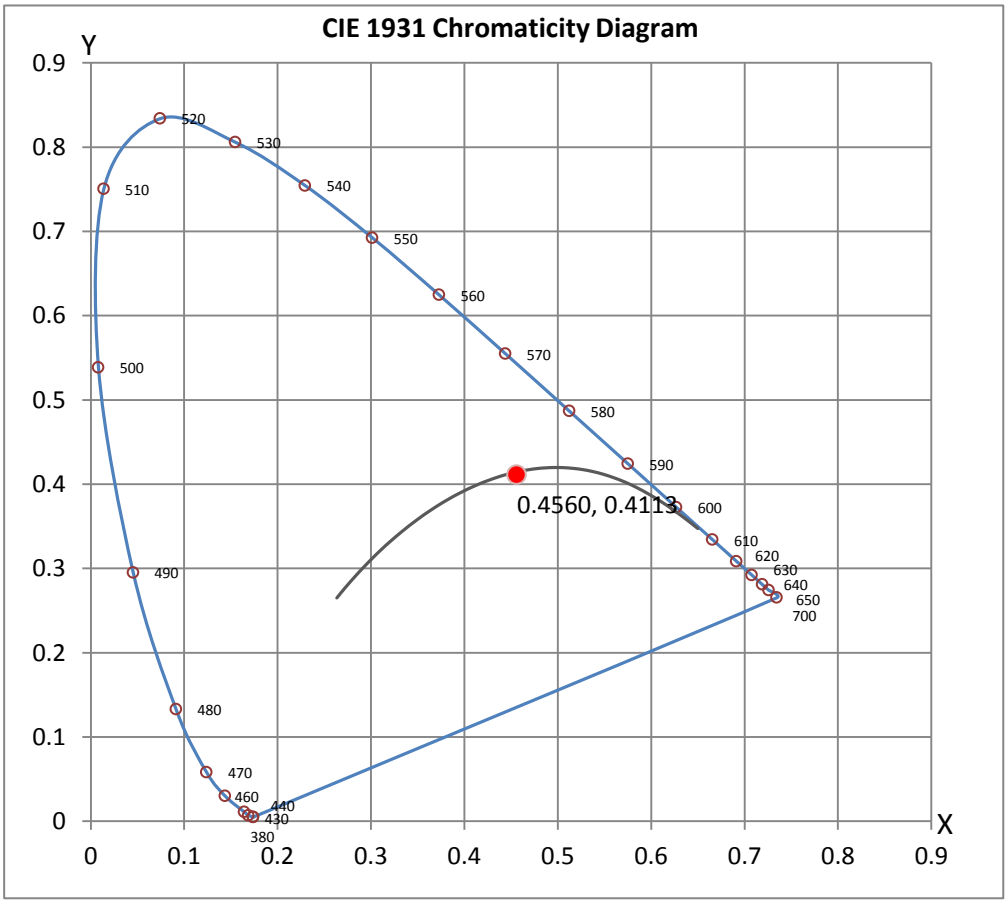


CRI & CCT

x	0.4560
y	0.4113
u'	0.2597
v'	0.5270
CRI	86.40
CCT	2760
Duv	0.00061

R Values

R1	85.39
R2	93.20
R3	96.82
R4	87.35
R5	86.95
R6	94.71
R7	84.16
R8	62.85
R9	18.93
R10	85.90
R11	89.66
R12	86.31
R13	87.26
R14	98.85
R15	76.84



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www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : Kunjan Modi

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

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www.lightlaboratory.com

Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211317.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L112211317
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 11/22/2022
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] MO-1LED-WW-FW / rECH8-1LED-WW-WT
[LUMINAIRE] Lumiled, 1LED, 2700K, Wall Wash Faceplate
[BALLASTCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type IV
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	34
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	19
Total Luminaire Watts	1.8
Ballast Factor	1.00
Upward Waste Light Ratio	0.52
Maximum Candela	24
Maximum Candela Angle	5H 85V
Maximum Candela (<90 Degrees Vertical)	24
Maximum Candela Angle (<90 Degrees Vertical)	5H 85V
Maximum Candela At 90 Degrees Vertical	23 (67.6% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	24 (70.6% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

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Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211317.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

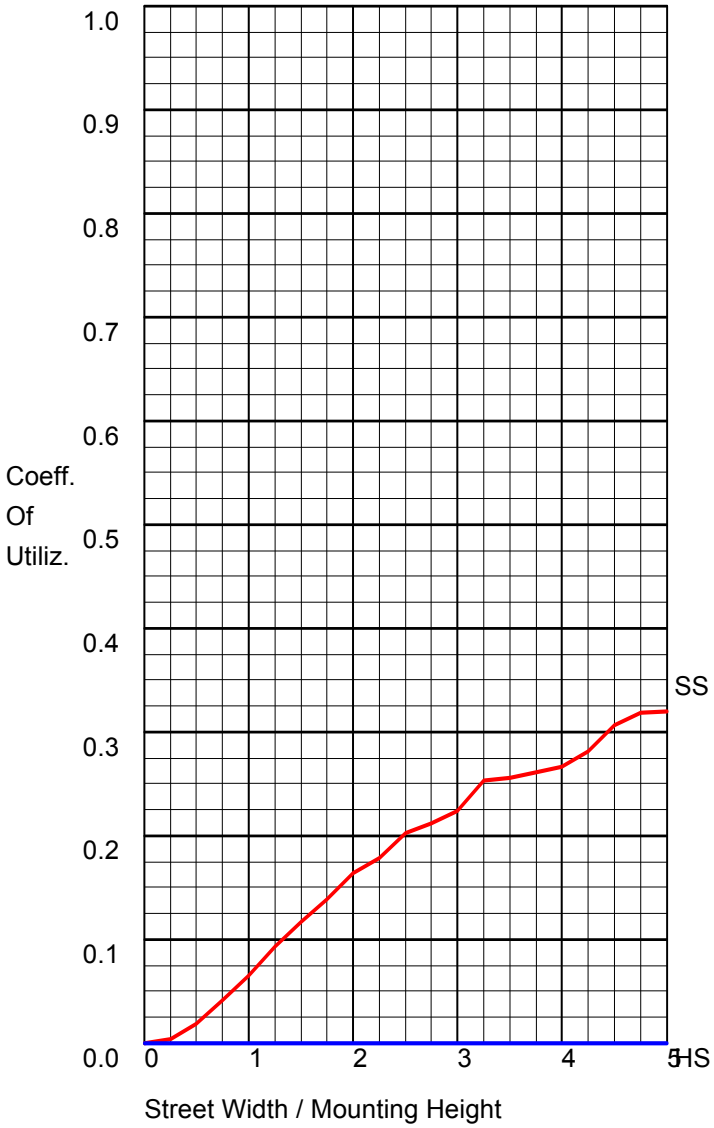
	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	0.3	N.A.	1.0
FM - Front-Medium (30-60)	3.3	N.A.	9.9
FH - Front-High (60-80)	6.9	N.A.	20.3
FVH - Front-Very High (80-90)	5.6	N.A.	16.4
BL - Back-Low (0-30)	0.0	N.A.	0.0
BM - Back-Medium (30-60)	0.0	N.A.	0.0
BH - Back-High (60-80)	0.0	N.A.	0.0
BVH - Back-Very High (80-90)	0.0	N.A.	0.0
UL - Uplight-Low (90-100)	5.3	N.A.	15.6
UH - Uplight-High (100-180)	12.5	N.A.	36.9
Total	33.9	N.A.	100.0
BUG Rating	B0-U2-G0		

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IES ROAD REPORT
PHOTOMETRIC FILENAME : L112211317.IES

COEFFICIENTS OF UTILIZATION



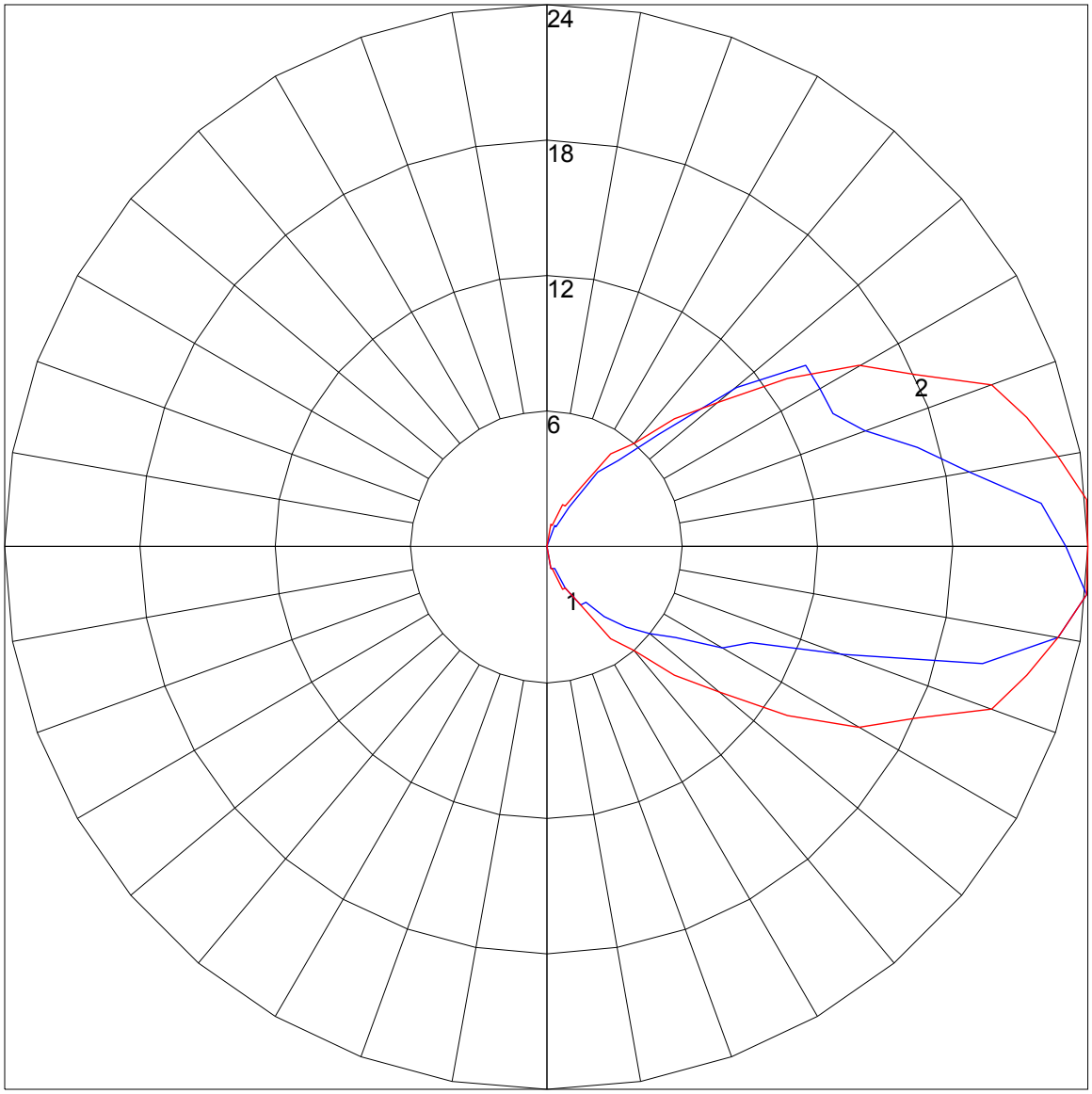
FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	16.2	47.5
Downward House Side	0.0	0.0
Downward Total	16.2	47.7
Upward Street Side	17.8	52.5
Upward House Side	0.0	0.0
Upward Total	17.8	52.4
Total Flux	34.0	100.1

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POLAR GRAPH

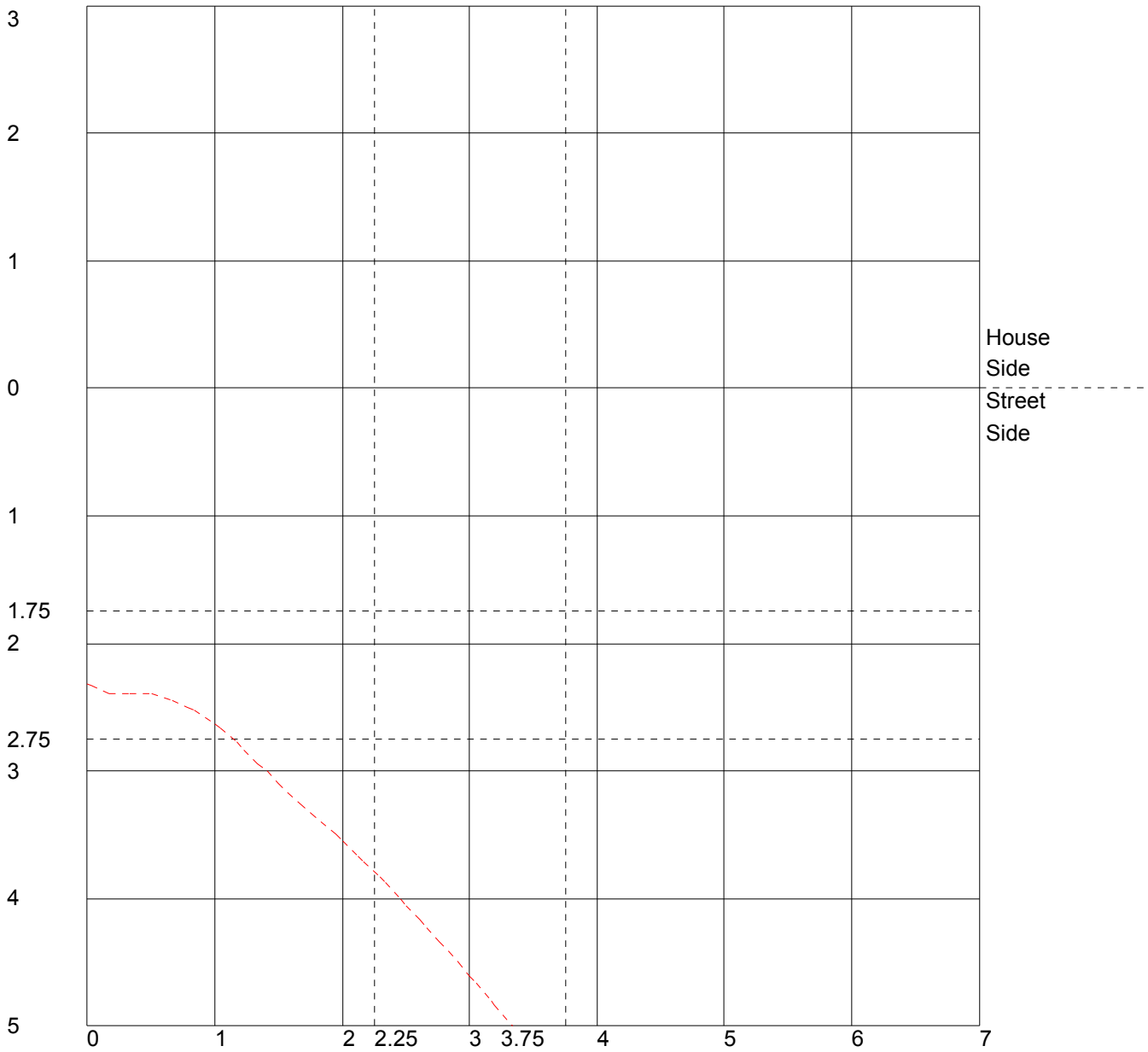


Maximum Candela = 24 Located At Horizontal Angle = 5, Vertical Angle = 85
1 - Vertical Plane Through Horizontal Angles (5 - 185) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (85) (Through Max. Cd.)

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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 20 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

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www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L022312114 **Issue Date: 3/7/2023**

Report Prepared For: FX Luminaire / Lumascape
1940 Diamond Street, San Marcos, CA 92078

Model Number: MO-1LED-ST-FW / rECH8-1LED-ST-WT

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 3/3/23

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

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NVLAP TESTING
NVLAP LAB CODE 200927-0

General Information	
Manufacturer:	FX Luminaire / Lumascape
Model Number:	MO-1LED-ST-FW / rECH8-1LED-ST-WT
Driver Model Number:	N/A

Test Summary	
Total Lumens:	127.00
Efficacy:	69.93
Color Redering Index:	82.7
Correlated Color Temperature:	2642
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.1785
Input Power (W):	1.82
Input Power Factor:	0.8481
Current ATHD (%):	50.6%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	0:55



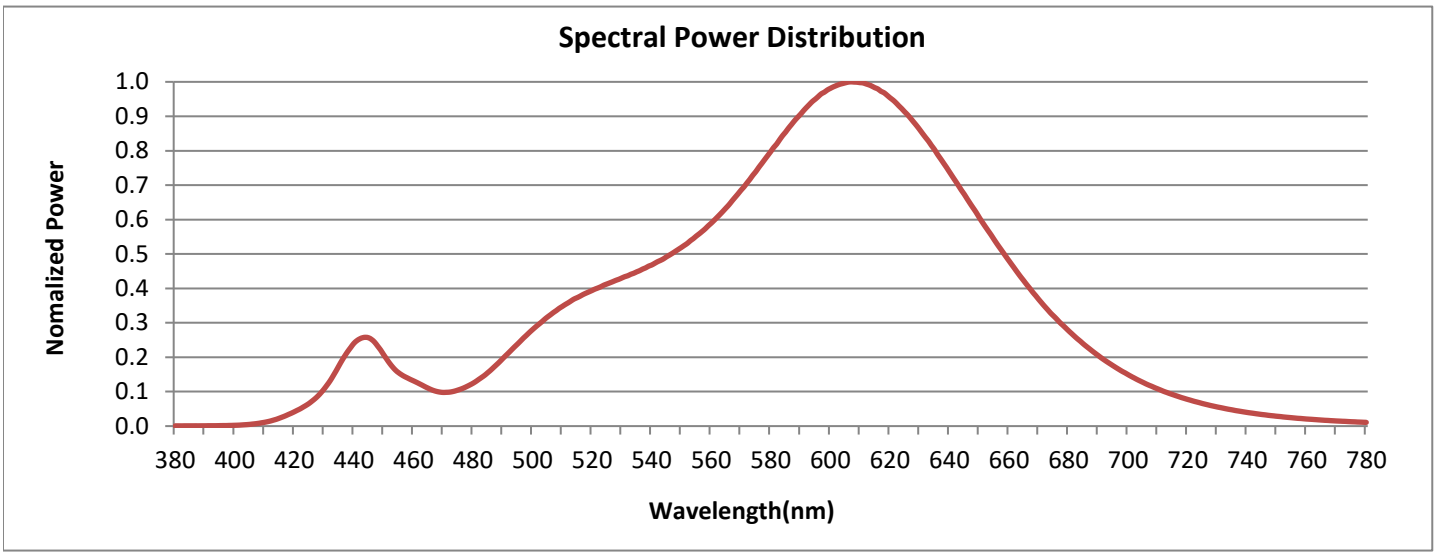
FIG. 1 LUMINAIRE

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Colorimetry Test Results

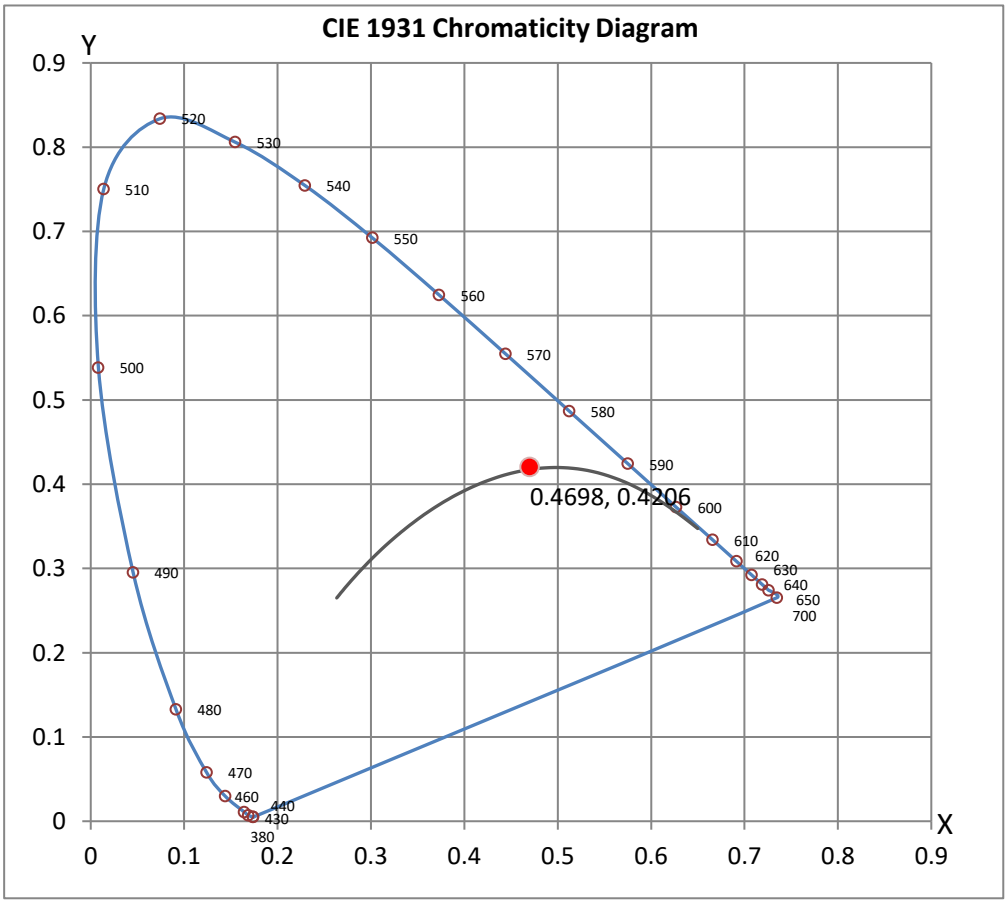


CRI & CCT

x	0.4698
y	0.4206
u'	0.2644
v'	0.5326
CRI	82.70
CCT	2642
Duv	0.00286

R Values

R1	80.32
R2	89.99
R3	97.67
R4	82.65
R5	81.44
R6	90.46
R7	82.42
R8	56.51
R9	4.68
R10	78.83
R11	83.52
R12	78.35
R13	82.25
R14	99.23
R15	71.14



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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : Kunjan Modi

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports.*

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Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L022312114.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L022312114
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 3/3/2023
[MANUFAC] FX Luminaire / Lumascape
[LUMCAT] MO-1LED-ST-FW / rECH8-1LED-ST-WT
[LUMINAIRE] Lumiled, 1LED, 2700K, Spot Faceplate
[BALLASTCAT]
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12 VAC
[TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

CHARACTERISTICS

NEMA Type	7 H x 7 V
Maximum Candela	75
Maximum Candela Angle	-3H -1V
Horizontal Beam Angle (50%)	71.3
Vertical Beam Angle (50%)	71.3
Horizontal Field Angle (10%)	140.0
Vertical Field Angle (10%)	140.0
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	64
Beam Efficiency	N.A.
Field Lumens	118
Field Efficiency	N.A.
Spill Lumens	9
Luminaire Lumens	127
Total Efficiency	N.A.
Total Luminaire Watts	1.82
Ballast Factor	1.00

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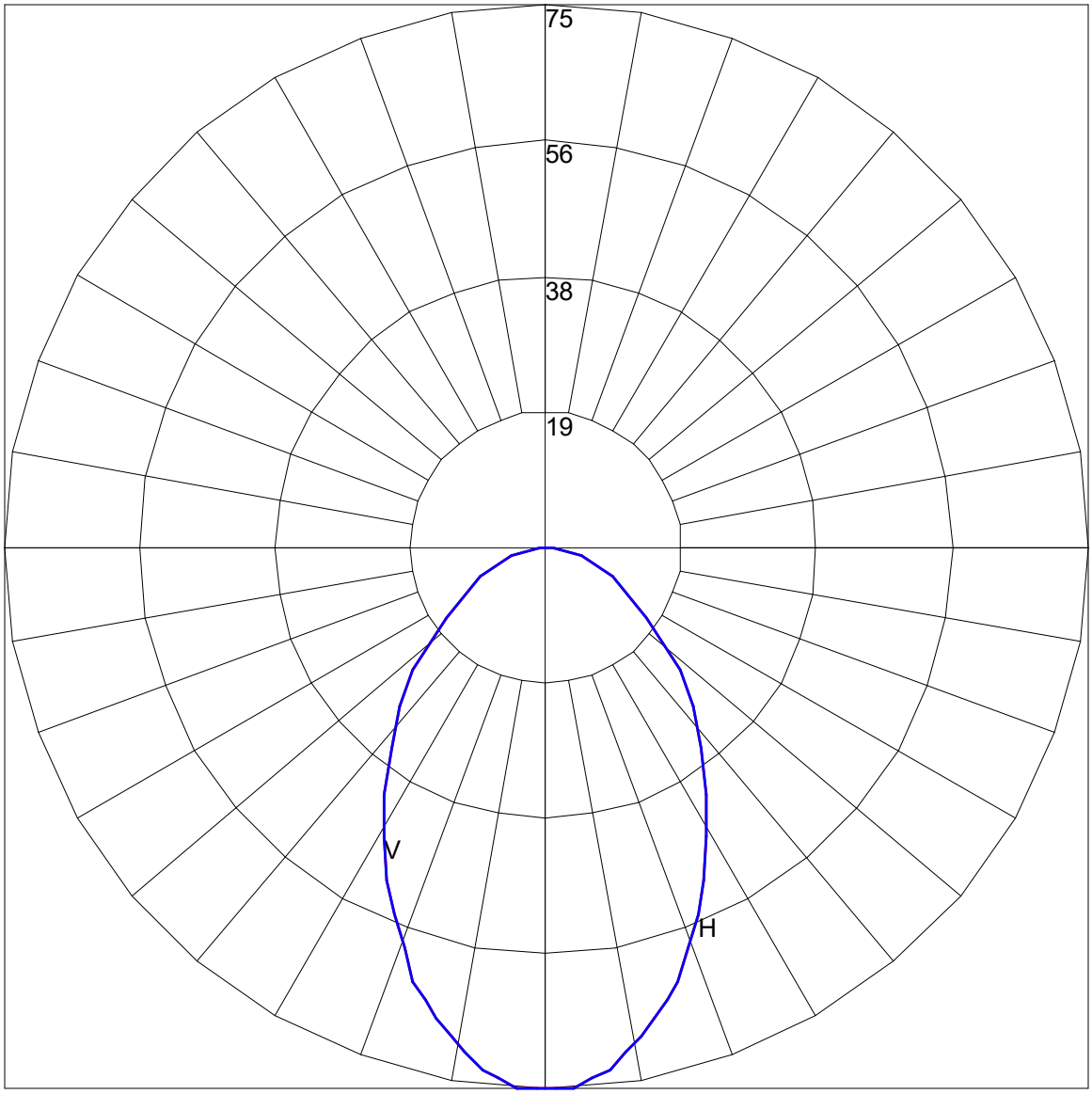
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	1	85	1
75	5	75	5
65	10	65	10
55	17	55	17
47.5	25	47.5	25
42.5	30	42.5	30
37.5	35	37.5	35
33	41	33	41
29	46	29	46
25.5	51	25.5	51
22.5	55	22.5	55
19.5	59	19.5	59
17	63	17	63
15	65	15	65
13	67	13	67
11	69	11	69
9	71	9	71
7	73	7	73
5	74	5	74
3	75	3	75
1	75	1	75
0	75	0	75
-1	75	-1	75
-3	75	-3	75
-5	74	-5	74
-7	73	-7	73
-9	71	-9	71
-11	69	-11	69
-13	67	-13	67
-15	65	-15	65
-17	63	-17	63
-19.5	59	-19.5	59
-22.5	55	-22.5	55
-25.5	51	-25.5	51
-29	46	-29	46
-33	41	-33	41
-37.5	35	-37.5	35
-42.5	30	-42.5	30
-47.5	25	-47.5	25
-55	17	-55	17
-65	10	-65	10
-75	5	-75	5
-85	1	-85	1
-90	0	-90	0

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AXIAL CANDELA DISPLAY

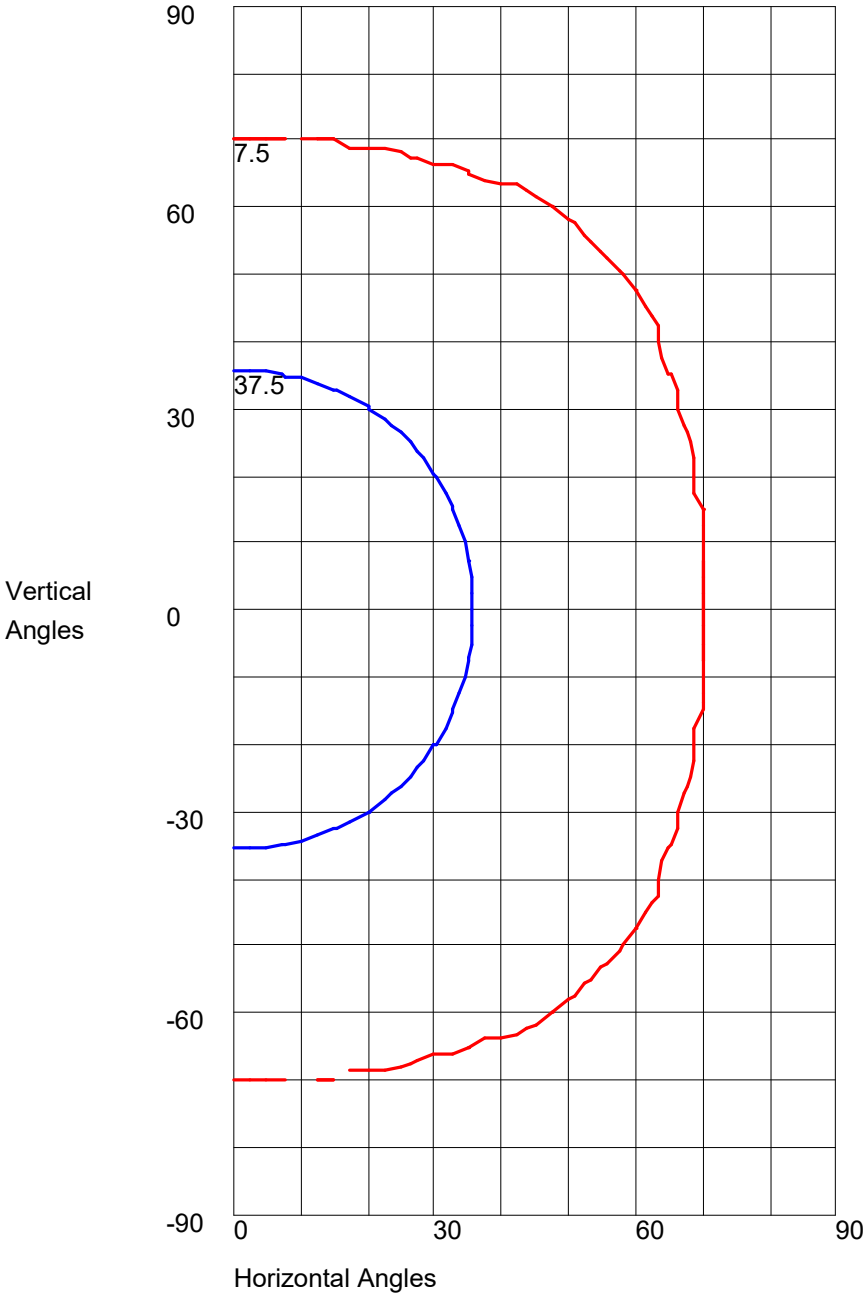


Maximum Candela = 75 Located At Horizontal Angle =-3, Vertical Angle =-1
H - Horizontal Axial Candela
V - Vertical Axial Candela

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IES FLOOD REPORT
PHOTOMETRIC FILENAME : L022312114.IES

ISOCANDELA CURVES



Maximum Candela = 75 Located At Horizontal Angle =-3, Vertical Angle =-1
50% Maximum Candela = 37.5
10% Maximum Candela = 7.5

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