

IESNA LM79: 2008 Photometric Test Report

Photometric Testing and Evaluation in Accordance with LM 79-2008

Report Prepared For

Francisco Garza

Product Manager

MaxLite

Description of Sample: LED Roadway QM4AU7T450 Quadramax 4 Module Type IV optics.
18"x13.5"

The Sample (s) was (were) tested in accordance with the following applied standards/regulations:

IESNA LM79: 2008 Approved for Electrical and Photometric Measurements of Solid-State Lighting Products.

ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products.

ANSI C82.77:2002 Harmonic Emissions Limits – Related Power Quality Requirement for Light Equipment.

CITL Test Number: CITL0001253

Sample Arrival Date: 09/22/2015

Date of Test: 09/23/2015

Report Issue Date: 10/12/2015

Report Prepared By:



Franklin Navarro
Lab Technician

Report Approved By:



Juan Xiang
Lab Manager

Sample Number: 1184

Manufacturer: MaxLite

Notes: Tested in intended orientation



Equipment Used:

Description	Model #	Serial #	Calibration Date	Calibration Due Date
Goniophotometer	GO-R5000	G116930CS1341112	09/03/2015	03/03/2016
EVERFINE AC POWER SUPPLY	DPS1060	G1174227A8341115	-	-
YOKOGAWA POWER ANALYZER	WT310	C2Q522012V	11/17/14	11/17/15
DC POWER SUPPLY	WY12010	G115909TM5341117	-	-
EVERFINE AC POWER SUPPLY	DSP1005	G119890CJ7341122	-	-
DC POWER SUPPLY	WY305	G115986TA8341112	-	-
INTERGRATING SPHERE	2 METER	CITL 0018	06/22/15	12/22/15
YOKOGAWA POWER ANALYZER	WT310	C2QJ22011V	11/17/14	11/17/15
FLUKE DIGITAL THERMOMETER	51II	29390172WS	04/09/15	04/09/16
TEMPERATURE AND HUMIDITY LOGGER	MX1101	10689441	03/20/15	03/20/16
TEMPERATURE AND HUMIDITY LOGGER	UX100-023	10683270	03/20/15	03/20/16

LM-79 Test Summary:

Manufacture:	MaxLite
Fixture Model Number:	QM4AU7T450
Driver Model Number:	OT180W/UNV/800C/2DIMLT2/P6
Lamp Model Number:	Luxeon TX

Electrical Measurement:

Input Voltage:	120VAC	277VAC
Input Current:	0.898 A	0.405 A
Input Frequency:	60 HZ	60 Hz
Input Power:	107.5 W	106.1W
Power Factor:	0.9968	0.9443
Total Harmonic Distortion:	4.3 ATHD	10.6 ATHD

Lumen Output:

Lumens:	12,038Lm	Lm
Efficacy:	111.06Lm/W	Lm/W
Color Rendering Index *(CRI)	Ra: 73.2 R ₉ : 0	Ra: R ₉ :
Correlated Color Temperature (K):	4915	
Chromaticity Coordinate x:	0.3475	
Chromaticity Coordinate y:	0.3535	
Ambient Temperature (°C):	25°C	
Stabilization Time (Hours):	45 Mins	
Total Operation Time (Hours):	1 Hrs	
u/u':	0.2123	
V':	0.4859	
Duv:	4.69e-05	
Spacing Criteria (0-180)	3.48	
Spacing Criteria (90-270)	1.92	
Zonal Lumens in the 0°-60° Zone	6,740.1lm – 56%	
Zonal Lumens in the 60°-90° Zone	5,288.0lm – 43.9%	
Zonal Lumens in the 0°-90° Zone	12,028.1lm – 99.9%	
Zonal Lumens in the 90°-120° Zone	6.1lm – 0.1%	
Zonal Lumens in the 90°-180° Zone	10.2lm – 0.1%	
BUG (Back, Up, Glare) Report	B2 – U1 – G2	

Test Methods:

Photometric Measurements – Goniophotometer:

An Everfine 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 60 minutes and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measure using the listed equipment.

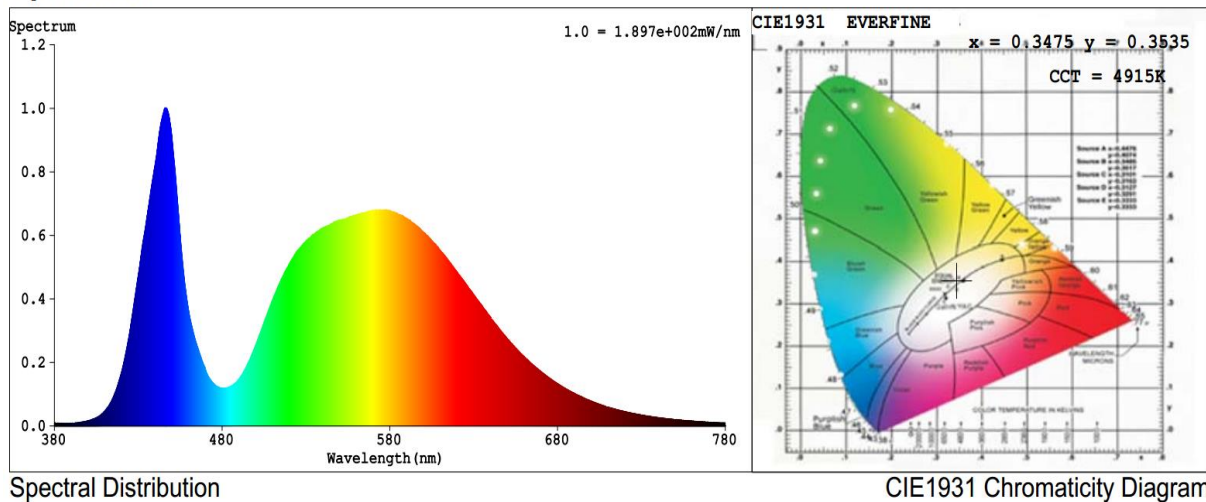
Spectral Measurements – Integrating Sphere

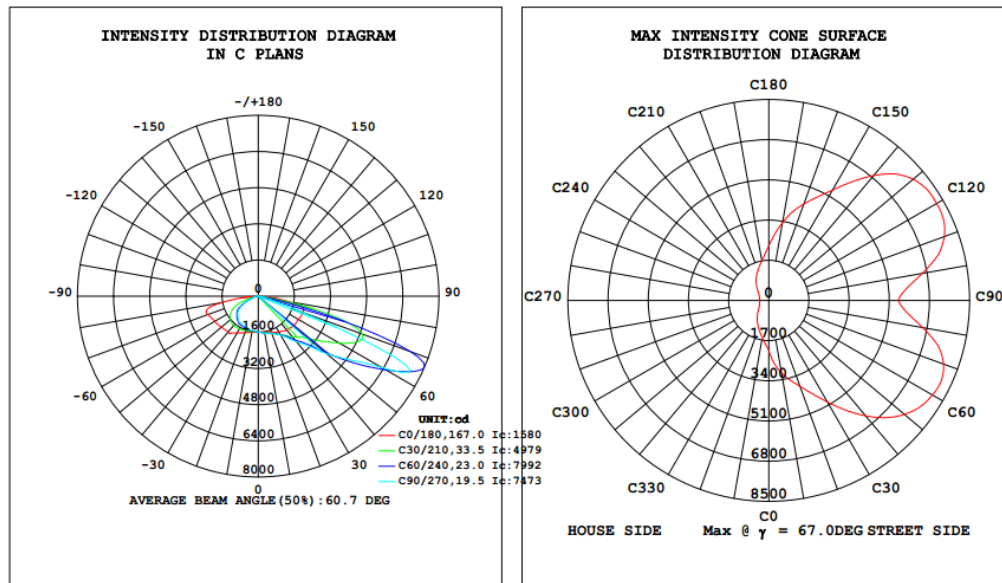
A sensing Spectrometer HASS-2000, in conjunction with Everfine 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature (CCT) and the color rendering index (CRI) for each sample. Test Geometry Configuration 4 π .

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 30 min and longer if necessary for the sample to achieve stabilization

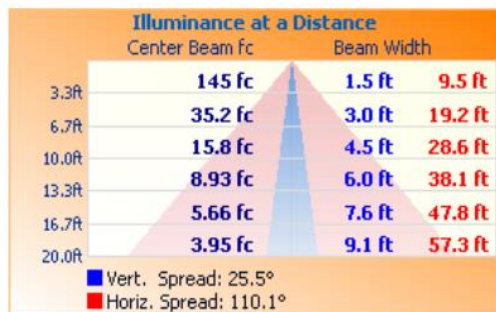
Electrical measurements are measured using the listed equipment.

Spectrum



STREETLIGHT PHOTOMETRIC TEST REPORT:

ZONAL FLUX DIAGRAM:

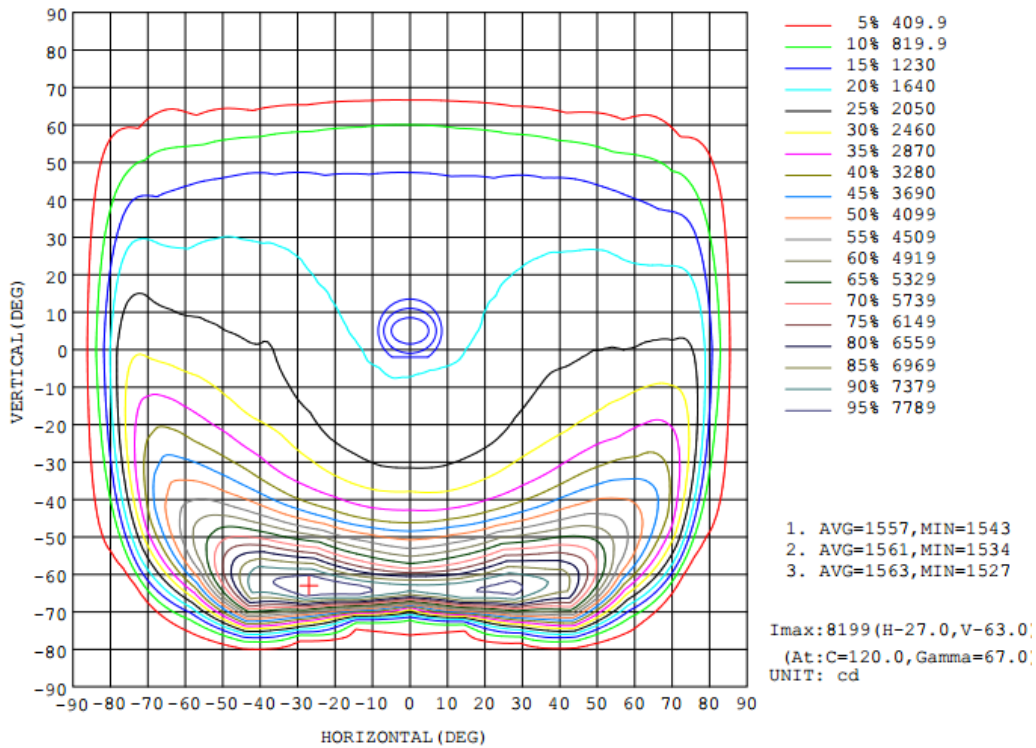
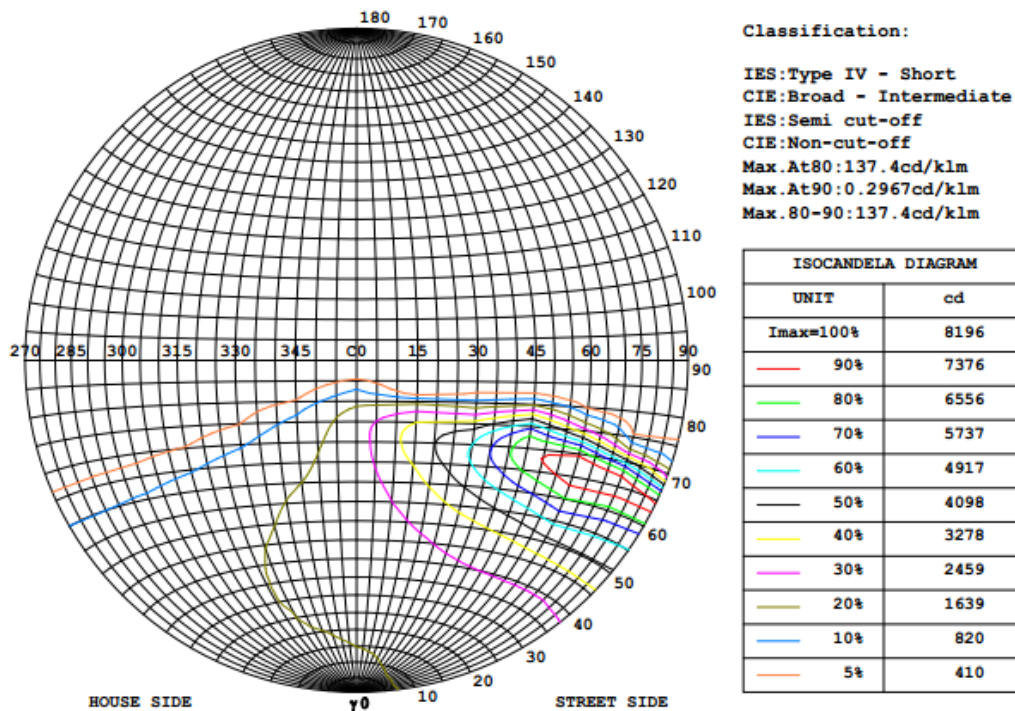
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	zone	total	lum, lamp
10	1601	1658	1662	1652	1616	1570	1537	1561	0- 10	152.2	152.2	1.26, 1.26
20	1687	1750	1746	1780	1722	1574	1498	1568	10- 20	464.2	616.3	5.12, 5.12
30	1825	1967	1909	2011	1879	1565	1437	1559	20- 30	796.3	1413	11.7, 11.7
40	1943	2463	2627	2549	2074	1531	1342	1509	30- 40	1185	2598	21.6, 21.6
50	2039	3370	3960	3490	2128	1385	1184	1364	40- 50	1676	4274	35.5, 35.5
60	2053	5416	6325	5762	2221	1108	819.4	1071	50- 60	2466	6740	56.56
70	2091	7135	2085	7688	2372	464.9	288.9	431.9	60- 70	3287	10028	83.3, 83.3
80	1372	1553	213.3	1592	1654	140.4	174.9	127.9	70- 80	1806	11834	98.3, 98.3
90	0.3001	0	0.1589	1.957	2.488	0.2687	0	0.3499	80- 90	193.9	12028	99.9, 99.9
100	0.6731	0	0	0	1.752	4.166	0.2810	4.359	90-100	0.7442	12029	99.9, 99.9
110	1.818	0	0	0	2.021	6.447	5.262	6.856	100-110	2.327	12031	99.9, 99.9
120	2.088	0.1343	0	0.1345	1.478	6.387	6.331	7.199	110-120	2.879	12034	100, 100
130	1.419	0.2706	0	0.3390	0.8758	2.960	3.829	3.502	120-130	1.986	12036	100, 100
140	1.145	0.4703	0	0.5379	0.8758	1.478	1.549	1.751	130-140	0.8945	12037	100, 100
150	1.078	0.7390	0	0.6724	0.8758	1.343	1.078	1.345	140-150	0.5288	12037	100, 100
160	0.8758	0.8061	0	0.7396	0.8758	1.276	1.078	1.145	150-160	0.3735	12038	100, 100
170	1.212	1.209	0.4715	0.9413	1.145	1.209	1.078	1.009	160-170	0.2462	12038	100, 100
180	1.280	1.209	0.5390	0.9413	1.078	1.209	1.078	1.143	170-180	0.1021	12038	100, 100
DEG	LUMINOUS INTENSITY: cd									UNIT: lm		


Zonal Lumen Summary

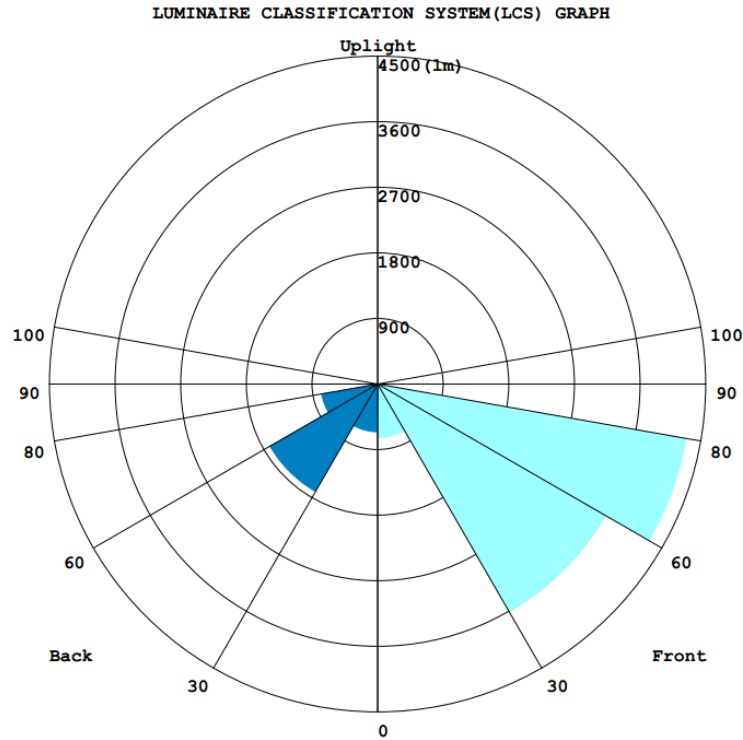
Zone	Lumens	% Luminaire
0-30	1,412.7	11.7%
0-40	2,598.0	21.6%
0-60	6,740.1	56%
60-90	5,288.0	43.9%
70-100	2,000.8	16.6%
90-120	6.1	0.1%
0-90	12,028.1	99.9%
90-180	10.2	0.1%
0-180	12,038.4	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	152.2	1.3%	90-100	0.9	0%
10-20	464.2	3.9%	100-110	2.3	0%
20-30	796.3	6.6%	110-120	2.9	0%
30-40	1,185.3	9.8%	120-130	2.0	0%
40-50	1,676.3	13.9%	130-140	0.9	0%
50-60	2,465.9	20.5%	140-150	0.5	0%
60-70	3,288.1	27.3%	150-160	0.4	0%
70-80	1,806.1	15.0%	160-170	0.3	0%
80-90	193.9	1.6%	170-180	0.1	0%

ISOCANDELA DIAGRAM:

STREETLIGHT ISOCANDELA DIAGRAM:


LCS REPORT:



*****End of Report*****