

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 QM5AU7T340 Quadramax 5 Module Type III optics. 20"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: CITL0001257

Sample Arrival Date: 09/25/2015

Date of Test: 10/07/2015

Report Issue Date: 10/14/2015

Report Prepared By:



Franklin Navarro
Lab Technician

Report Approved By:



Juan Xiang
Lab Manager

Sample Number: 1188

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:	QM5AU7T340
Driver Model Number:	OT180W/UNV/800C/2DIMLT2/P6
Lamp Model Number:	Luxeon TX

Electrical Measurement:

Input Voltage:	120VAC	277VAC
Input Current:	1.128 A	0.492 A
Input Frequency:	60 HZ	60 Hz
Input Power:	135.5 W	132.8W
Power Factor:	0.9972	0.9608
Total Harmonic Distortion:	3.3 ATHD	8.6 ATHD

Lumen Output:

Lumens:	14,626Lm	Lm
Efficacy:	109.78Lm/W	Lm/W
Color Rendering Index *(CRI)	Ra: 73.5 R ₉ : 0	Ra: R ₉ :
Correlated Color Temperature (K):	3895	
Chromaticity Coordinate x:	0.3837	
Chromaticity Coordinate y:	0.3747	
Ambient Temperature (°C):	25°C	
Stabilization Time (Hours):	45 Mins	
Total Operation Time (Hours):	1 Hrs	
u/u':	0.2281	
V':	0.5012	
Duv:	1.89e-03	
Spacing Criteria (0-180)	2.90	
Spacing Criteria (90-270)	3.64	
Zonal Lumens in the 0°-60° Zone	10,082.6lm – 68.9%	
Zonal Lumens in the 60°-90° Zone	4,528.8lm – 31%	
Zonal Lumens in the 0°-90° Zone	14,611lm – 99.9%	
Zonal Lumens in the 90°-120° Zone	4.9lm – 0%	
Zonal Lumens in the 90°-180° Zone	12.1lm – 0.1%	
BUG (Back, Up, Glare) Report	B3 – U2 – G3	

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

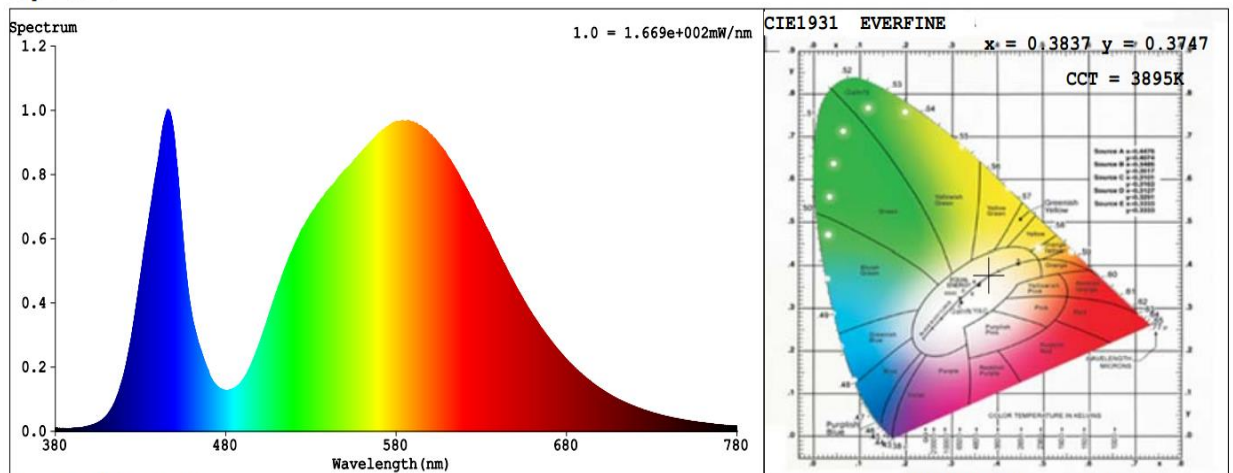
A sensing Spectrometer HASS-2000, in conjunction with Everfine 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature (CCT) and the color rendering index (CRI) for each sample. Test Geometry Configuration 4 π .

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.

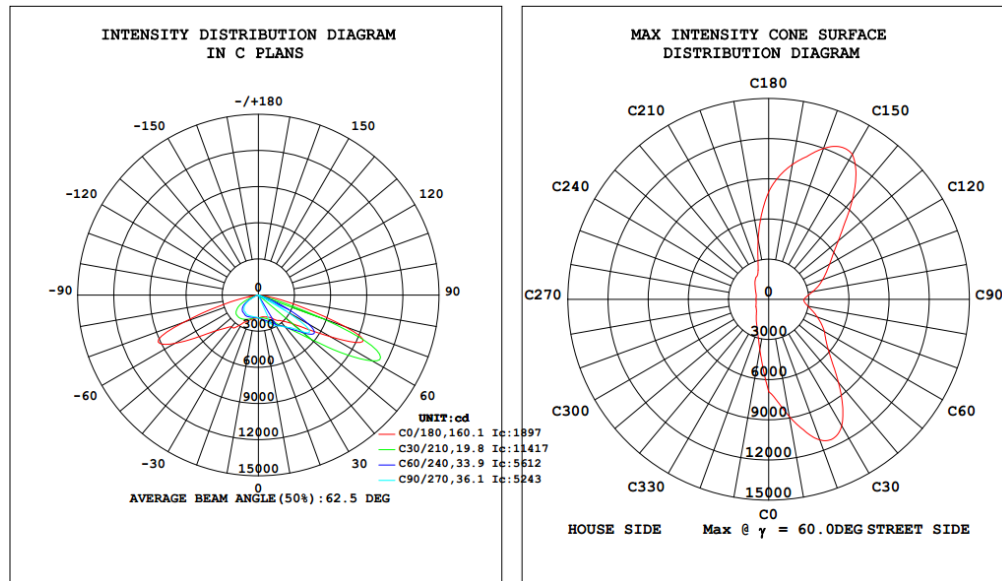
STREETLIGHT PHOTOMETRIC TEST REPORT:

Spectrum

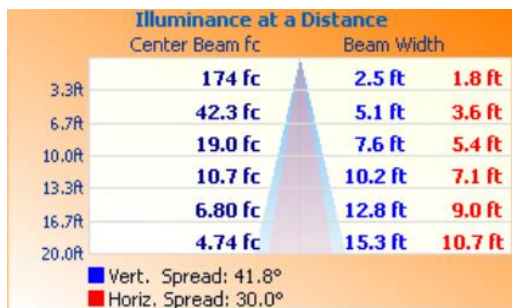


Spectral Distribution

CIE1931 Chromaticity Diagram

STREETLIGHT PHOTOMETRIC TEST REPORT:

ZONAL FLUX DIAGRAM:

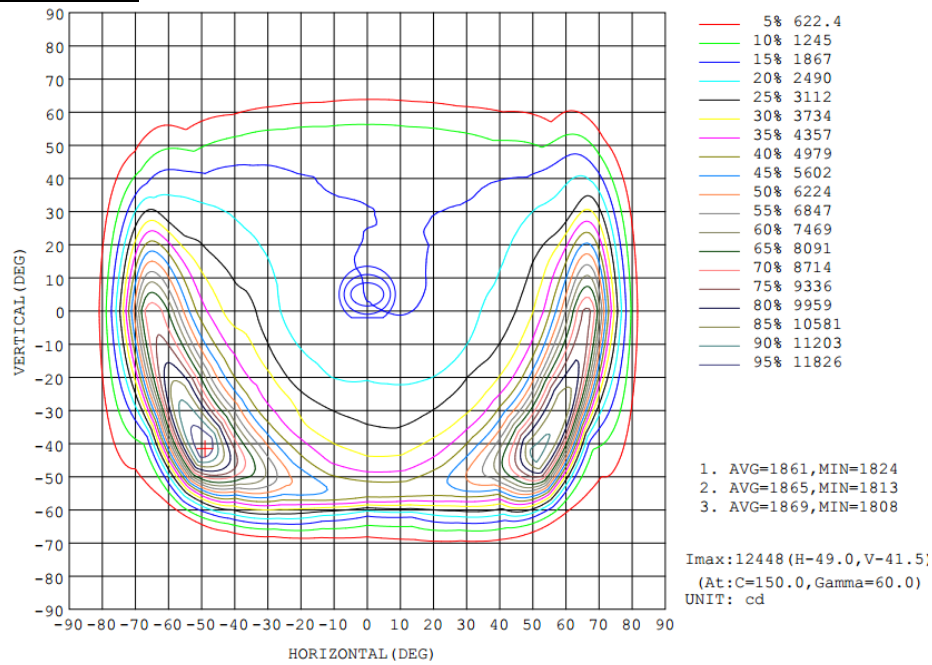
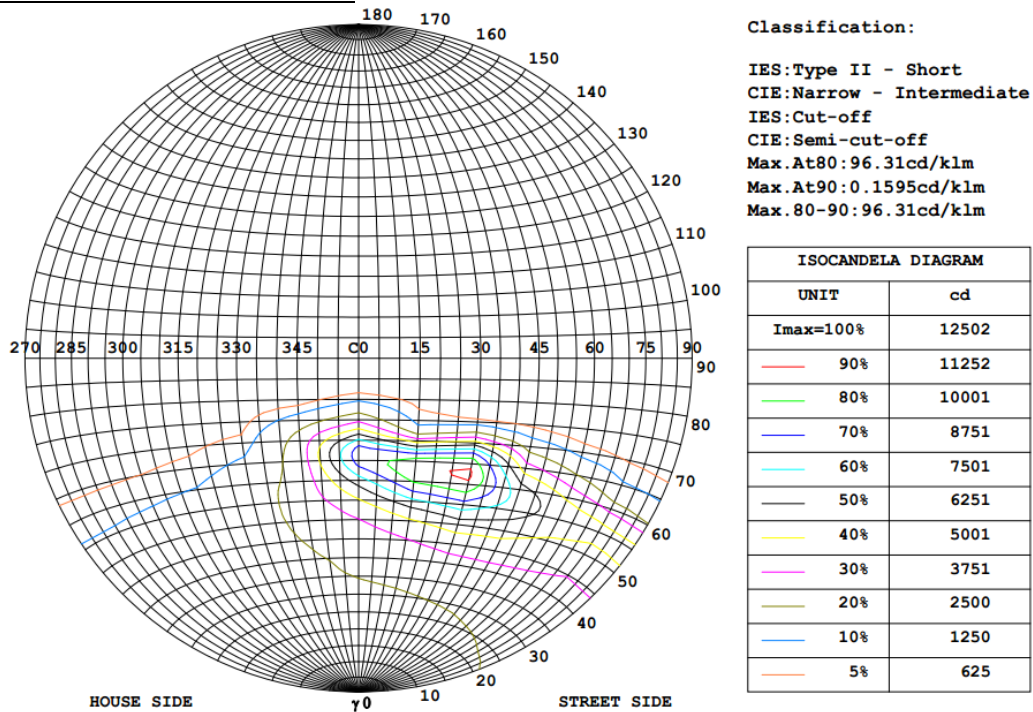
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	$\%lum, lamp$
10	184.4	197.3	211.1	205.5	196.8	190.5	185.5	181.3	0- 10	183.0	183.0	1.25, 1.62
20	193.5	220.4	245.9	240.1	222.3	202.3	185.2	182.5	10- 20	574.8	757.9	5.18, 6.71
30	221.5	264.0	294.8	300.5	275.6	213.3	187.4	189.1	20- 30	1049	1807	12.4, 16
40	275.2	347.7	346.4	431.4	345.1	211.7	177.5	188.5	30- 40	1695	3503	23.9, 31
50	370.3	546.6	466.7	683.8	461.3	200.7	154.8	176.3	40- 50	2569	6072	41.5, 53.7
60	690.4	674.6	264.5	802.7	802.9	143.6	95.38	129.5	50- 60	4012	10083	68.9, 89.2
70	767.2	197.5	34.95	178.1	662.4	40.70	27.31	47.26	60- 70	3575	13658	93.4, 121
80	108.8	16.85	8.291	15.81	86.06	13.43	14.62	15.01	70- 80	864.1	14522	99.3, 129
90	0.0013	0	0.0194	0	0.1340	0.0015	0	0.0007	80- 90	91.89	14614	99.9, 129
100	0.1206	0	0	0	0.4042	0	0	0	90-100	0.1910	14614	99.9, 129
110	0.4896	0	0	0	0.7110	0.3361	0.0679	0.3904	100-110	1.568	14615	99.9, 129
120	0.6371	0.0472	0	0.0540	0.6971	0.5278	0.3446	0.6570	110-120	3.104	14619	100, 129
130	0.5104	0.0928	0.0068	0.0843	0.3482	0.4710	0.3648	0.6122	120-130	3.075	14622	100, 129
140	0.3087	0.1202	0.0068	0.1057	0.1339	0.2893	0.2695	0.3650	130-140	1.835	14623	100, 129
150	0.2079	0.1284	0.0307	0.1069	0.1274	0.2373	0.1789	0.2522	140-150	1.042	14624	100, 129
160	0.1476	0.1340	0.0607	0.1080	0.1274	0.1990	0.1716	0.1893	150-160	0.6932	14625	100, 129
170	0.1409	0.1448	0.1035	0.1120	0.1274	0.1881	0.1660	0.1732	160-170	0.4068	14626	100, 129
180	0.1409	0.1479	0.1081	0.1148	0.1274	0.2085	0.1621	0.1688	170-180	0.1431	14626	100, 129
DEG	LUMINOUS INTENSITY: μ cd									UNIT: lm		


Zonal Lumen Summary

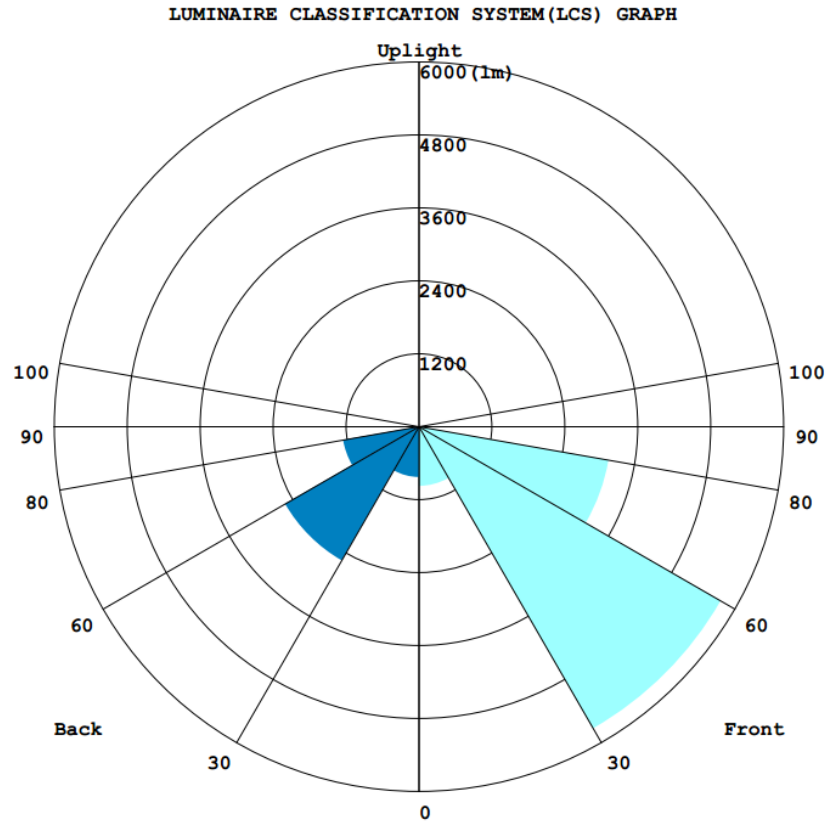
Zone	Lumens	% Luminaire
0-30	1,807.4	12.4%
0-40	3,502.6	24%
0-60	10,082.6	68.9%
60-90	4,528.8	31%
70-100	955.6	6.5%
90-120	4.9	0%
0-90	14,611.4	99.9%
90-180	12.1	0.1%
0-180	14,623.5	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	183.1	1.3%	90-100	0.2	0%
10-20	574.9	3.9%	100-110	1.6	0%
20-30	1,049.5	7.2%	110-120	3.1	0%
30-40	1,695.1	11.6%	120-130	3.1	0%
40-50	2,568.9	17.6%	130-140	1.8	0%
50-60	4,011.1	27.4%	140-150	1.0	0%
60-70	3,573.4	24.4%	150-160	0.7	0%
70-80	863.6	5.9%	160-170	0.4	0%
80-90	91.9	0.6%	170-180	0.1	0%

ISOCANDELA DIAGRAM:

STREETLIGHT ISOCANDELA DIAGRAM:


LCS REPORT:



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