Photometric Test Report

Relevant Standards

IES LM-79-2008

ANSI C82.77-10-2014

Prepared For

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Catalog Number

L36T8/830/11G-XT 2C N

Project Number

4788554269

Report Number

4788554269_1R02

Test Date

07/25/2018 - 08/03/2018

Issue Date

08/15/2018

Revision Date

10/09/2018

Prepared By

Jonathan Xu

Elvis Wu

Approved By

Duff Yang

Test Summary

Designlights Consortium Technical requirements table v4.3- issued 03/26/2018

Requirement Category	Test Method	Requirements	Test Value	Results (Fail/Pass)
Minimum Light Output (lm)	IES LM-79-2008	2200lm	2842lm	Pass
Minimum Bare Lamp Output (lm)	IES LM-79-2008	1200.0lm	1553.04lm	Pass
Zonal Lumen Requirement (0°-60°)	IES LM-79-2008	40.0%	58.4%	Pass
Minimum Luminaire Efficacy (lm/W)	IES LM-79-2008	100.0lm/W	109.57lm/W	Pass
Minimum Bare Lamp Efficacy (lm/W)	IES LM-79-2008	110.0lm/W	120.66lm/W	Pass
Alowable CCTs (K)	IES LM-79-2008/ANSI C78.377-2015	2870K~3220K	3112K	Pass
Minimum CRI	IES LM-79-2008/CIE 13.3-1995	80.0	82.98	Pass
Power Factor	ANSI C82.77-10-2014	0.9	0.9006	Pass
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	20.00%	17.31%	Pass
L70 Lumen maintenance (Hours)	IES LM-80-2015/IES TM-21-2018	50000.0H	50000.0H	Pass
Minimum Luminaire Warranty (Years)	N/A	5.0Tears	5.0Tears	Pass

Test List

Test Item	Test	Test Date	Model Number	Tests Conducted By
1	Integrating Sphere Test for the Lower CCT	08/03/2018	L36T8/830/11G-XT 2C N	Elvis Wu
2	Goniophotometer Test for the Lower CCT	07/25/2018	L36T8/830/11G-XT 2C N	Elvis Wu
3	THD and PF Test	07/25/2018	L36T8/830/11G-XT 2C N	Elvis Wu

Remark (if any)

1. UL test equipment information is recorded on Meter Use in UL's Aurora database.
This report replace 4788554269_1R01 (original report number), the report 4788554269_1R01 is terminated.

Production Description

Luminaire Description: T8 Three-Foot Linear Replacement Lamps

Model Number: L36T8/830/11G-XT 2C N

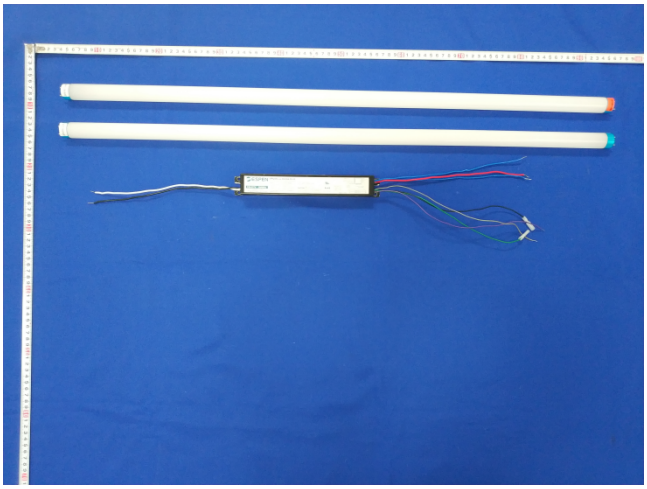
Rated Voltage: 120-277V

Frequency: 50/60Hz

LED Package: L128-3080RA3500xxx

Remark: Housing Model: C 2 25 MVOLT GEB10IS

Photos of Luminaire Characteristics



LM-79 Measurement and Test Results

Integrating Sphere Test for the Lower CCT

Model No.	L36T8/830/11G-XT 2C N	Sample ID.	1679360-001, 1679360-002, 1722774-001
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

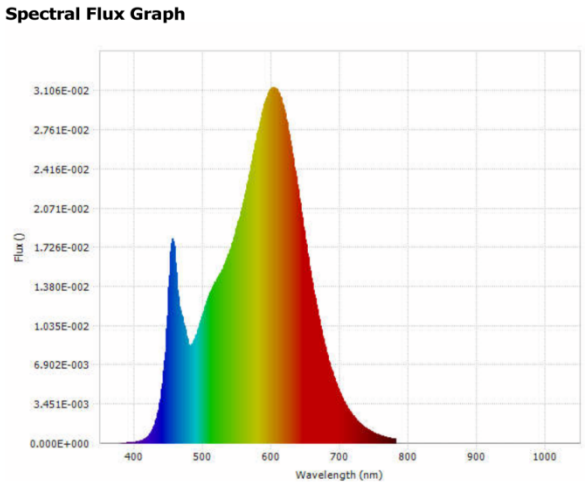
1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
2.Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25° C ± 1° C. The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by Labsphere, Inc., Optical Calibration Laboratory.
3.The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result.The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm. Testing Orientation of this product is horizontal.

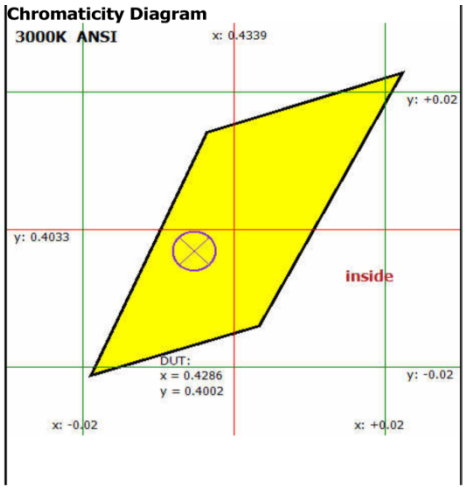
Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD
25.1	120	60	0.2155	25.743	0.9957	N/A

Test Results

CCT (K)	CRI (Ra)	Duv	Luminous Flux (lm)	Luminous Efficacy (lm/W)	Luminous Efficacy (lm/ft)
3112	82.98	0.0004	1553.04	120.66	N/A





Luminous Flux	1553.04	Chrom x	0.4286
Chrom y	0.4002	Chrom u	0.2468
Chrom v	0.3457	Duv	0.0004
Chrom u'	0.2468	Chrom v'	0.5186
CCT	3112	Luminous Efficacy	60.33
Ra	82.98	R1	82.2
R2	93.7	R3	93.3
R4	79.8	R5	82.8
R6	92.4	R7	81.2
R8	58.5	R9	7.8
R10	85.7	R11	79.2
R12	74.5	R13	85.3
R14	96.9	R15	74.5
Rf	83.0	Rg	93.5

Goniophotometer Test

Model No.	L36T8/830/11G-XT 2C N	Sample ID.	1679360-001, 1679360-002, 1722774-001
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
2.Photometric paramters were measured using a type C goniophotometer and software.
3.The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The reference standard lamp is rated current 3.875A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology, China.
4.The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. Photometric distance was more than five times of the largest dimension of the test SSL product. Testing Orientation of this product is horizontal.

Goniophotometer Test Conditions

Temperature(°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.6	120.05	60	0.2169	25.936	0.9958	Horizontal

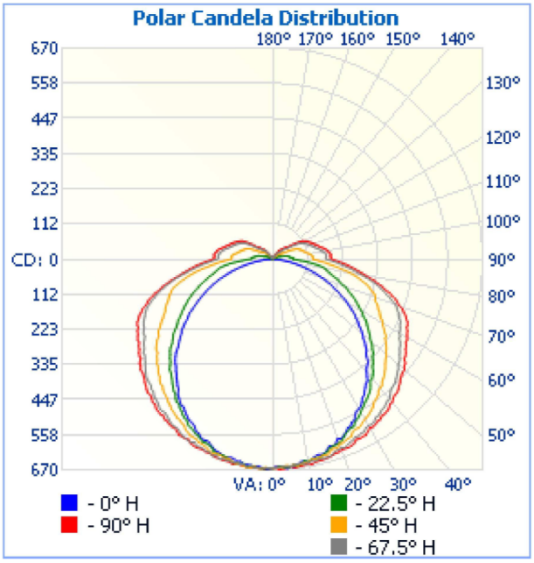
Test Results

Flux (lm)	Zonal Lumen Requirement	Zonal Lumen Requirement	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)
	0°-60°	N/A	Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
2841.9	58.4%	N/A	159.6	161.8	155.6	109.7	109.57

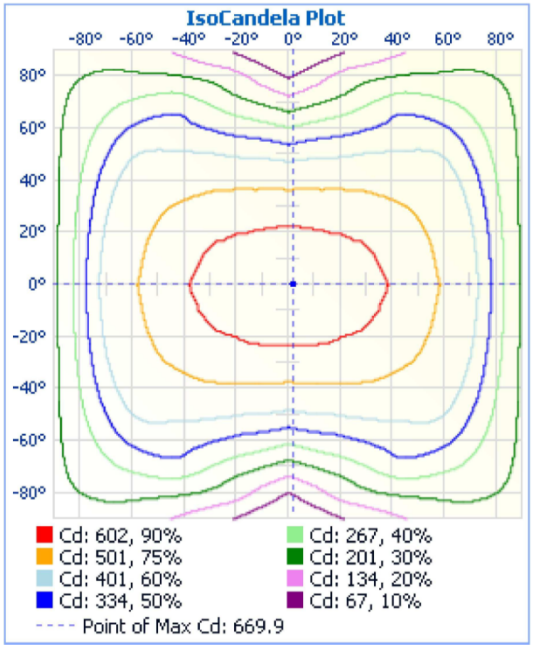
SC	SC
0~180°	90°~270°
1.24	1.42

Goniophotometer Test (Cont'd)

Light Distribution Curve



IsoCandela Plot



Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	528.3	18.6%
0-40	882.2	31%
0-60	1,660.3	58.4%
60-90	836.1	29.4%
70-100	598.1	21%
90-120	284.5	10%
0-90	2,496.5	87.8%
90-180	345.4	12.2%
0-180	2,841.9	100%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	15.9	0.6%	90-95	63.2	2.2%
5-10	47.2	1.7%	95-100	58.9	2.1%
10-15	77.3	2.7%	100-105	51.6	1.8%
15-20	105.3	3.7%	105-110	43.7	1.5%
20-25	130.5	4.6%	110-115	37.5	1.3%
25-30	152.2	5.4%	115-120	29.5	1%
30-35	170.2	6.0%	120-125	21.1	0.7%
35-40	183.7	6.5%	125-130	13.7	0.5%
40-45	192.6	6.8%	130-135	9.7	0.3%
45-50	197.0	6.9%	135-140	6.7	0.2%
50-55	196.4	6.9%	140-145	4.2	0.1%
55-60	192.0	6.8%	145-150	2.2	0.1%
60-65	185.1	6.5%	150-155	1.1	0%
65-70	175.1	6.2%	155-160	0.7	0%
70-75	158.5	5.6%	160-165	0.6	0%
75-80	134.7	4.7%	165-170	0.5	0%
80-85	105.9	3.7%	170-175	0.3	0%
85-90	76.8	2.7%	175-180	0.1	0%

Intensity Data(cd)

Candela Table - Type C																	
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665
1	658	664	661	663	665	663	665	665	669	665	665	663	665	663	661	664	658
2	661	659	664	661	670	664	661	666	666	666	661	664	670	661	664	659	661
3	659	662	660	659	667	668	669	667	663	667	669	668	667	659	660	662	659
4	668	662	657	662	666	663	665	665	658	665	665	663	666	662	657	662	668
5	660	662	660	660	660	665	662	663	664	663	662	665	660	660	660	662	660
6	663	657	657	658	667	660	667	660	659	660	667	660	667	658	657	657	663
7	659	660	661	657	665	666	668	664	658	664	668	666	665	657	661	660	659
8	651	658	657	654	663	659	664	657	658	657	664	659	663	654	657	658	651
9	649	648	655	658	662	659	660	659	651	659	660	659	662	658	655	648	649
10	656	654	655	658	659	658	660	657	653	657	660	658	659	658	655	654	656
11	650	647	649	653	664	657	656	659	646	659	656	657	664	653	649	647	650
12	643	647	648	657	659	656	650	651	645	651	650	656	659	657	648	647	643
13	638	648	649	653	658	656	650	647	649	647	650	656	658	653	649	648	638
14	641	646	645	653	658	654	650	644	647	644	650	654	658	653	645	646	641
15	638	640	645	654	656	657	644	643	639	643	644	657	656	654	645	640	638
16	631	635	645	654	655	649	644	642	636	642	644	649	655	654	645	635	631
17	621	627	635	650	652	654	646	639	634	639	646	654	652	650	635	627	621
18	625	624	632	642	649	646	643	628	625	628	643	646	649	642	632	624	625
19	620	624	635	641	649	646	637	625	617	625	637	646	649	641	635	624	620
20	607	622	624	639	645	642	632	621	613	621	632	642	645	639	624	622	607
25	587	591	605	623	632	636	619	600	587	600	619	636	632	623	605	591	587
30	549	562	589	612	620	617	590	571	558	571	590	617	620	612	589	562	549
35	512	530	562	597	607	596	568	538	526	538	568	596	607	597	562	530	512
40	466	494	534	579	594	580	542	498	476	498	542	580	594	579	534	494	466
45	421	452	506	554	569	556	514	459	437	459	514	556	569	554	506	452	421
50	375	411	474	522	548	528	481	416	382	416	481	528	548	522	474	411	375
55	324	368	438	494	518	498	449	373	330	373	449	498	518	494	438	368	324
60	274	327	405	465	496	475	410	332	278	332	410	475	496	465	405	327	274
65	215	283	371	446	475	450	377	291	226	291	377	450	475	446	371	283	215
70	161	238	348	415	429	417	350	247	169	247	350	417	429	415	348	238	161
75	110	197	310	357	370	361	315	205	117	205	315	361	370	357	310	197	110
80	60	168	250	289	302	295	255	173	65	173	255	295	302	289	250	168	60
85	21	115	180	227	244	229	187	123	24	123	187	229	244	227	180	115	21
90	3	67	130	172	190	176	133	70	4	70	133	176	190	172	130	67	3
95	3	59	126	172	186	172	128	62	3	62	128	172	186	172	126	59	3
100	3	50	112	157	173	160	115	51	3	51	115	160	173	157	112	50	3
105	3	35	101	140	155	142	102	38	3	38	102	142	155	140	101	35	3
110	3	23	91	128	141	130	91	24	3	24	91	130	141	128	91	23	3
115	3	15	71	116	127	118	75	18	3	18	75	118	127	116	71	15	3
120	3	10	39	100	114	101	47	13	3	13	47	101	114	100	39	10	3
125	3	6	28	65	85	67	38	8	3	8	38	67	85	65	28	6	3
130	3	4	21	47	58	51	31	4	3	4	31	51	58	47	21	4	3
135	3	3	14	32	45	39	22	3	3	3	22	39	45	32	14	3	3
140	4	4	9	23	36	32	14	4	4	4	14	32	36	23	9	4	4
145	3	4	5	12	23	19	6	4	4	4	6	19	23	12	5	4	3
150	4	4	3	6	12	10	4	4	4	4	4	10	12	6	3	4	4
155	4	4	4	3	4	3	3	4	4	4	3	3	4	3	4	4	4
160	4	4	4	3	2	3	4	4	4	4	4	3	2	3	4	4	4
165	5	5	4	3	2	3	4	5	5	5	4	3	2	3	4	5	5
170	5	5	4	4	3	4	4	5	5	5	4	4	3	4	4	5	5
175	5	5	4	4	3	4	4	5	5	5	4	4	3	4	4	5	5
180	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

THD and PF Test

Model No.	L36T8/830/11G-XT 2C N	Sample ID.	1679360-001, 1679360-002, 1722774-001

Test Method

1. The samples were tested according to the ANSI C82.77-10-2014.
2. The ambient temperature condition was maintained at 25º C ± 1º C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from thedigital power meter.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD
24.6	276.99	60	0.1033	25.774	0.9006	17.31%

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