

# Philips Lumileds

## IESNA LM-80 Test Report

### 1. Applicable LUXEON® Series part number

This IESNA LM-80 Test Report applies to the following LUXEON part number:

Product Family	Part Number	Nominal CCT
LUXEON A	LXH9-PW30	3000K

### 2. L70 Extrapolations per IESNA TM-21-11

	If = 350mA	If = 500mA	If = 700mA	If = 1000mA
Ts = 120°C	> 60,000	58,000		
Ts = 105°C	> 60,000	> 60,000	58,000	43,000
Ts = 85°C	> 60,000	> 60,000	> 60,000	54,000
Ts = 55°C	> 60,000	> 60,000	> 60,000	> 54,000

= Limited by TM-21 6x rule

### 3. Number of LED light sources tested

Eighty or 160 units per test / 25 units reported. Units reported are selected as follows:

- The first 25 units from each CCT bin are reported. See section 21 below for more detail.

### 4. Description of LED light sources tested

LUXEON Rebel p/n: LXM8-PW30 (nominal CCT 3000K)

## 5. Dates Tests Started

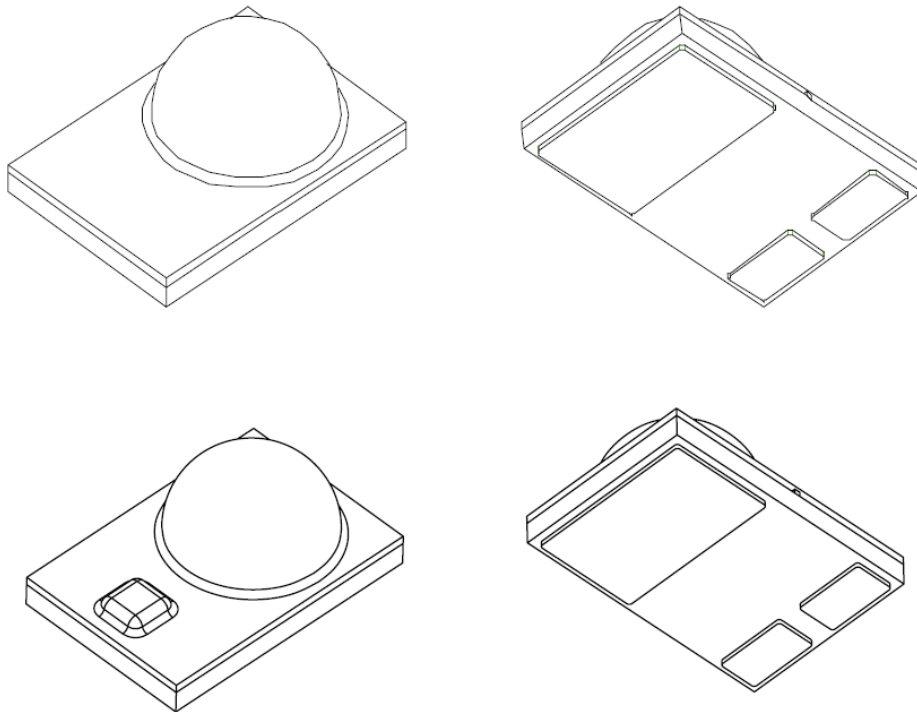
DATA SETs 10, 11, 12, 13, 14, 15, 16, 17, 18, 38, 43, 44, 45, 46: April 1, 2010 - April 3, 2010

## 6. Date Report First Issued

DATA SETs 10, 11, 12, 13, 14, 15, 16, 17, 18: DR-04 dated May 09, 2011.

DATA SETs 38, 43, 44, 45, 46: new to this report.

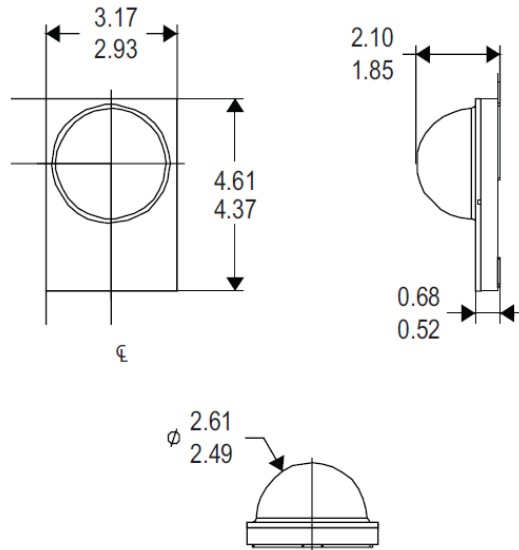
## 7. Package Pictures



**Figure 1: Isometric drawings**

## 8. Mechanical Drawing

For detailed mechanical drawings, please see individual product data sheet.

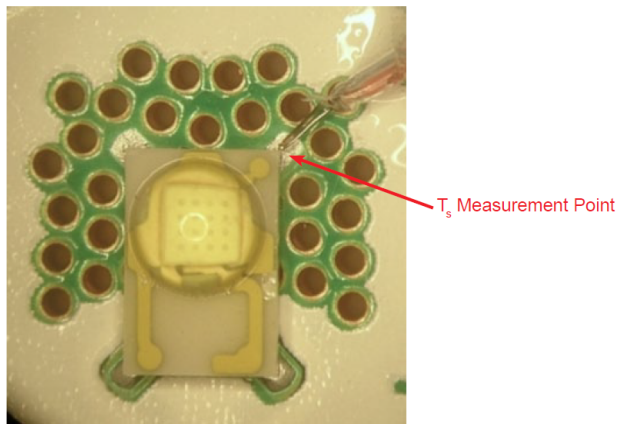


**Figure 2: Mechanical Drawings**

Notes for Figure 2:

- Drawings not to scale. All dimensions are in millimeters.
- The thermal pad is electrically isolated from the anode and cathode contact pads.

## 9. $T_s$ Measurement Point



**Figure 3: LUXEON Rebel with  $T_s$  thermocouple.**

For further information on measuring the in-situ  $T_s$ , please see Philips Lumileds AB33 "LUXEON LED Thermal Management Guidelines", February 28, 2012.

## 10. Description of auxiliary equipment

LUXEON LED devices are soldered to reliability stress boards that can accommodate up to 160 devices. LUXEON LEDs are connected in series strings of up to 20 devices and driven by a constant current source for each series string.

Reliability stress boards are mounted in a thermal chamber which provides water or liquid N<sub>2</sub> cooling to the bottom-side of the reliability stress board.

The reliability stress board is periodically removed from the thermal chamber, allowed to cool to room temperature, and then tested.

The tester consists of a computer-controlled x-y table, integrating sphere, programmable current-source meter, and relay switching-matrix. Each LUXEON LED is positioned underneath the integrating sphere and driven with a constant-current pulse. Luminous flux, ( $u'$ ,  $v'$ ), and forward voltage are measured for each LUXEON LED.

After testing, the reliability stress board is returned to the thermal chamber for additional operation.

## 11. Operating Cycle

LUXEON LEDs are driven with a constant direct current (DC).

## 12. Ambient conditions including airflow, temperature, and relative humidity

The case temperature within the thermal chamber was characterized by mounting several thermocouples on a sample reliability stress board at the designated thermal measurement point, as shown in the application brief, LUXEON LED Thermal Measurement Guidelines (AB33). In addition, several thermocouples were mounted in the air at a distance of 1.5mm above the reliability stress board. The reliability stress board was then mounted in the thermal chamber and driven at the specified stress condition. The thermocouple readings were monitored. After the thermocouples reached thermal equilibrium, the thermocouple readings were data-logged and averaged together. The relative humidity within the oven was characterized to be < 65%.

The photometry measurement temperature is set and monitored to be within  $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$  with no forced airflow and RH < 65%.

## 13. $T_s$ and ambient temperatures (ambient temperature measured 1.5mm above reliability stress board)

In all cases, both  $T_s$  and  $T_{\text{air}}$  meet or exceed the IESNA LM-80-08 limits.

## 14. Drive current of the LED light source during lifetime test

See tables.

## 15. Initial luminous flux and forward voltage at photometric measurement current

See tables.

## 16. Lumen maintenance for data for each individual light source along with median value, standard deviation, minimum and maximum lumen maintenance value for all of the light sources

See tables.

## 17. Observation of LED light source failures including the failure conditions and time of failure

No failures observed in devices reported.

## 18. LED light source monitoring interval

Units were tested at 0, 24, 168, 500, 1000, then at 1000-hour intervals after 1000 hours.

## 19. Photometric measurement uncertainty

Long-term measurement uncertainty is based on reproducibility tests done over a period of one year, calculated to  $k = 2$  coverage (i.e. 95% coverage)

Luminous Flux ( $\Phi_v$ )  $\pm 2\%$

Forward Voltage ( $V_f$ )  $\pm 0.4\%$

1976 UCS color space,  $u' \pm 0.1\%$

1976 UCS color space,  $v' \pm 0.1\%$

Note:  $u'$  and  $v'$  measurement accuracy may vary by color point location.

Note:  $k = 2$  coverage means that the numbers cited represent  $\pm 2$  standard deviations of measurement uncertainty based on reproducibility tests done over a period of one year.

## 20. Chromaticity shift reported over the measurement time

See tables.

## 21. Sampling Method/Sample size

IESNA LM-80 tests require LED samples to be operated at a minimum of a single current and three temperatures of 55°C, 85°C and a third temperature picked by the LED manufacturer. Philips Lumileds has picked the third temperature in the range of 105°C and 120°C, depending on the maximum ratings of the LED.

LED samples for IESNA LM-80 testing consist of units built from a minimum of two manufacturing lots. These manufacturing lots are picked to represent a wide parametric distribution. Samples from each of these manufacturing lots are soldered to all of the reliability stress boards for a given set of IESNA LM-80 tests. A typical IESNA LM-80 test might consist of up to two 40-unit CCT color bins distributed across one 80-LED reliability stress board, or up to four 40-unit CCT color bins distributed across two 80-LED reliability stress boards. Then the first 25 consecutive units out of the larger 40-unit sample set are reported. These reported 25 unit samples include samples from all of the same manufacturing lots which were used to populate the reliability stress boards.

## 22. ISO 17025-2005 Accreditation



American Association for Laboratory Accreditation

### SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

PHILIPS LUMILEDS LIGHTING COMPANY  
370 West Trimble Road  
San Jose, CA 95131-1008  
Majed Alayleh Phone: 408-964-2793  
Email: Majed.Alayleh@philips.com

ELECTRICAL

Valid To: July 31, 2015

Certificate Number: 3129.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the laboratory's compliance with A2LA's EPA ENERGY STAR<sup>®</sup> Accreditation Program<sup>1</sup> requirements), accreditation is granted to this laboratory to perform the following tests:

**Test Technology:**

**Test Method(s):**

***ENERGY STAR<sup>®</sup> Testing***

Lumen Maintenance of LED Light Sources IESNA LM-80-08

<sup>1</sup> A2LA provides accreditation to the U.S. EPA's [Conditions and Criteria for Recognition of Laboratories for the ENERGY STAR Program](#) by verifying an organization's compliance to A2LA document [R222 - Specific Requirements - EPA ENERGY STAR Accreditation Program](#) and to the related test methods listed above.

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(A2LA Cert. No. 3129.01) 07/03/2013

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5301 Buckeystown Pike, Suite 350 | Frederick, Maryland 21704-8373 | Phone: 301 644 3248 | Fax: 301 662 2974 | [www.A2LA.org](http://www.A2LA.org)



American Association for Laboratory Accreditation



## Notes

Data is for reference only and is not an endorsement to exceed the Data Sheet operating conditions.

The TM21 extrapolations are based on the IESNA TM21 draft dated April 1st 2011. The TM-21 lumen maintenance model is based on the flux data normalized to 1 at 0 hours and the use of an exponential model for flux(time):

Flux(time) = B exp[-alpha\*time], where normally B  $\cong$  1, and alpha > 0.

An L70 extrapolation less than 0 means that the model predicts an increasing flux output with time, i.e. alpha < 0 (see graphs). Generally, this means that additional test time is needed to determine the long-term lumen maintenance behavior.

The current EPA limits of 91.8% or 94.1% at 6,000 hours are based on the flux data normalized to 1 at 0 hours and the use of a simple exponential model for flux (time):

Flux(time) = exp[-alpha\*time], where alpha is calculated based on the 6,000 hour flux measurement only.

By comparison, the TM-21 method uses a least-squares curve fit of all of the data from 1,000 to 6,000 hours to the exponential model, with the added parameter B.

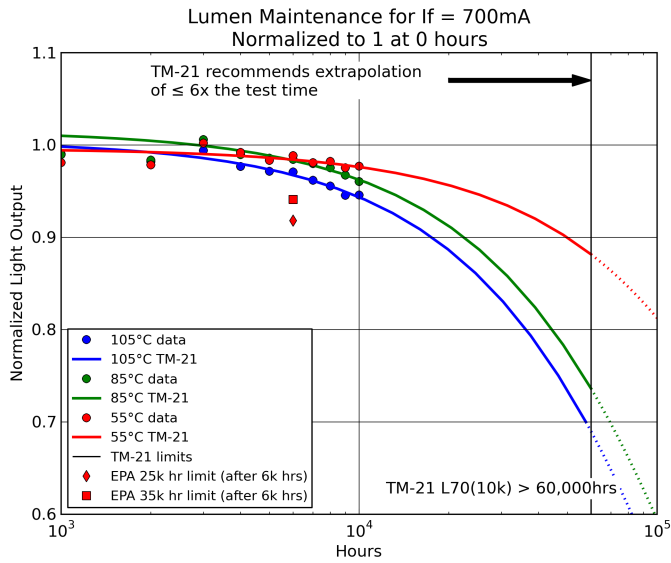
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**Normalized Flux Statistics for If = 700mA (LXH9-PW30)**

	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	alpha	B	L70	
DATASET 13	median =	1.0000	0.9943	0.9930	1.0070	0.9894	0.9810	0.9936	0.9756	0.9721	0.9710	0.9617	0.9556	0.9464	0.9462			
Ts=Tair=105°C	average =	1.0000	0.9950	0.9938	1.0053	0.9903	0.9819	0.9940	0.9767	0.9716	0.9707	0.9617	0.9556	0.9456	0.9459	6.2611e-06	1.0045	57,690
	st dev =	0.0000	0.0027	0.0052	0.0080	0.0069	0.0065	0.0068	0.0064	0.0072	0.0076	0.0071	0.0074	0.0087	0.0088	TM-21 L70(10k) = 57,700hrs		
	min =	1.0000	0.9901	0.9860	0.9902	0.9814	0.9734	0.9840	0.9664	0.9606	0.9589	0.9496	0.9384	0.9285	0.9267			
	max =	1.0000	1.0036	1.0097	1.0180	1.0041	0.9958	1.0089	0.9920	0.9863	0.9880	0.9750	0.9699	0.9612	0.9624			
DATASET 14	median =	1.0000	0.9998	0.9938	0.9940	0.9886	0.9833	1.0041	0.9886	0.9838	0.9834	0.9792	0.9744	0.9672	0.9603			
Ts=Tair=85°C	average =	1.0000	0.9999	0.9931	0.9946	0.9896	0.9838	1.0058	0.9897	0.9858	0.9842	0.9800	0.9753	0.9674	0.9603	5.3562e-06	1.0154	69,450
	st dev =	0.0000	0.0045	0.0057	0.0050	0.0065	0.0080	0.0084	0.0087	0.0083	0.0082	0.0081	0.0079	0.0074	0.0076	TM-21 L70(10k) > 60,000hrs		
	min =	1.0000	0.9913	0.9763	0.9872	0.9791	0.9722	0.9931	0.9758	0.9742	0.9718	0.9688	0.9637	0.9566	0.9481			
	max =	1.0000	1.0092	1.0040	1.0069	1.0057	1.0065	1.0269	1.0111	1.0058	1.0032	0.9985	0.9908	0.9836	0.9762			
DATASET 15	median =	1.0000	0.9990	0.9932	0.9920	0.9816	0.9798	1.0034	0.9938	0.9845	0.9893	0.9813	0.9843	0.9763	0.9773			
Ts=Tair=55°C	average =	1.0000	0.9992	0.9928	0.9918	0.9808	0.9785	1.0020	0.9922	0.9833	0.9884	0.9810	0.9824	0.9753	0.9769	2.0393e-06	0.9963	173,100
	st dev =	0.0000	0.0030	0.0039	0.0047	0.0052	0.0052	0.0060	0.0059	0.0065	0.0068	0.0068	0.0070	0.0078	0.0076	TM-21 L70(10k) > 60,000hrs		
	min =	1.0000	0.9903	0.9776	0.9746	0.9626	0.9593	0.9811	0.9714	0.9627	0.9697	0.9602	0.9624	0.9543	0.9545			
	max =	1.0000	1.0035	0.9973	0.9984	0.9877	0.9841	1.0102	1.0000	0.9909	0.9995	0.9896	0.9914	0.9863	0.9890			





Delta u'v' for If = 700mA (LXH9-PW30)

		0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
DATASET 13	median =	0.0000	0.0010	0.0015	0.0023	0.0027	0.0029	0.0031	0.0030	0.0026	0.0024	0.0022	0.0018	0.0017	0.0017
Ts=Tair=105°C	average =	0.0000	0.0010	0.0015	0.0023	0.0027	0.0029	0.0031	0.0029	0.0026	0.0023	0.0021	0.0018	0.0016	0.0017
	st dev =	0.0000	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004
	min =	0.0000	0.0009	0.0013	0.0020	0.0024	0.0026	0.0027	0.0023	0.0020	0.0016	0.0014	0.0011	0.0009	0.0009
	max =	0.0000	0.0011	0.0017	0.0026	0.0030	0.0032	0.0034	0.0033	0.0030	0.0027	0.0027	0.0024	0.0023	0.0024
DATASET 14	median =	0.0000	0.0012	0.0016	0.0021	0.0028	0.0034	0.0036	0.0037	0.0037	0.0036	0.0036	0.0035	0.0034	0.0027
Ts=Tair=85°C	average =	0.0000	0.0012	0.0015	0.0020	0.0028	0.0033	0.0036	0.0037	0.0037	0.0036	0.0036	0.0034	0.0033	0.0026
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004
	min =	0.0000	0.0010	0.0013	0.0017	0.0023	0.0029	0.0032	0.0032	0.0032	0.0030	0.0030	0.0028	0.0027	0.0018
	max =	0.0000	0.0013	0.0017	0.0023	0.0031	0.0036	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038	0.0040	0.0033
DATASET 15	median =	0.0000	0.0013	0.0017	0.0020	0.0024	0.0032	0.0038	0.0038	0.0038	0.0039	0.0040	0.0039	0.0039	0.0034
Ts=Tair=55°C	average =	0.0000	0.0013	0.0017	0.0020	0.0025	0.0033	0.0038	0.0039	0.0038	0.0039	0.0040	0.0039	0.0039	0.0033
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003
	min =	0.0000	0.0011	0.0015	0.0018	0.0022	0.0029	0.0034	0.0036	0.0035	0.0036	0.0037	0.0036	0.0036	0.0026
	max =	0.0000	0.0016	0.0021	0.0025	0.0029	0.0039	0.0044	0.0044	0.0044	0.0043	0.0044	0.0043	0.0043	0.0038

**Luminous Flux [lm] data for tested units**  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	
A1	2992K	117.254	117.231	116.505	116.190	114.840	114.631	117.713	116.674	115.433	115.773	115.334	115.436	114.612	114.648
A2	3008K	113.322	113.343	113.015	112.705	111.543	111.343	113.854	112.960	112.010	112.107	111.790	111.682	110.949	111.008
A3	2921K	117.520	117.235	116.479	116.047	114.592	114.409	117.228	116.187	115.095	115.478	114.950	114.823	114.236	114.242
A4	2975K	120.334	120.552	119.293	118.963	117.535	117.373	120.500	119.348	118.324	118.607	118.020	118.043	117.327	117.370
A5	2986K	116.314	116.070	115.447	115.316	113.975	113.523	116.089	115.104	114.092	114.631	113.849	113.825	113.298	113.248
A6	2992K	114.539	114.257	113.981	114.076	112.782	112.440	115.437	114.353	113.456	114.084	113.267	113.555	112.965	113.000
A7	2965K	115.079	114.889	114.439	114.895	113.661	113.245	115.574	114.627	113.660	114.465	113.668	113.842	112.805	113.089
A8	3026K	119.910	119.785	119.029	119.279	117.781	117.653	120.060	119.212	118.331	118.907	118.239	118.405	117.605	117.758
A9	3083K	120.990	121.017	120.171	120.348	118.897	118.685	121.689	120.481	119.608	120.265	119.539	119.712	119.005	119.665
A10	3048K	122.815	123.225	122.338	122.254	120.815	120.607	123.691	122.403	121.505	122.068	121.286	121.661	120.744	121.234
A21	3055K	113.748	113.274	112.664	112.558	111.308	111.118	114.006	112.765	111.389	112.190	111.255	111.709	110.956	111.010
A22	3026K	118.700	118.356	117.588	117.380	116.126	115.958	119.109	117.524	116.516	117.142	115.996	116.314	115.497	115.378
A23	3032K	116.566	116.187	115.222	114.875	113.408	113.097	116.015	114.583	113.084	113.954	112.972	113.042	112.342	112.393
A24	3043K	119.874	119.501	118.701	118.669	117.397	117.203	120.180	119.036	117.995	118.610	117.749	117.790	117.187	117.150
A25	3043K	122.889	123.189	122.165	121.906	120.495	120.235	123.868	122.262	121.495	122.233	121.138	121.290	120.469	120.495
A26	3104K	128.489	128.926	127.829	127.550	126.117	126.027	129.029	127.699	126.626	127.359	126.005	126.711	125.438	125.393
A27	3032K	123.902	124.072	123.110	122.906	121.626	121.404	124.957	123.582	122.454	123.320	122.113	122.402	121.672	121.688
A28	3056K	116.598	116.382	115.704	115.680	114.601	114.449	117.790	116.601	115.532	116.537	115.383	115.451	114.952	114.911
A29	3020K	117.473	117.167	116.564	116.521	115.304	115.320	118.176	117.037	116.117	116.974	115.807	115.826	115.183	115.345
A30	3002K	114.499	113.391	111.939	111.595	110.218	109.837	112.339	111.224	110.223	111.034	109.943	110.192	109.266	109.287
A41	3081K	121.690	121.801	121.200	121.080	119.786	119.515	121.433	120.413	119.269	119.961	118.745	118.964	117.577	118.187
A42	3049K	123.559	123.505	122.925	122.828	121.609	120.986	123.030	121.841	120.841	121.069	120.459	120.436	119.369	119.896
A43	3082K	123.489	123.853	123.139	123.069	121.737	121.133	123.085	122.195	121.225	121.874	120.858	120.955	119.488	120.323
A44	3009K	120.449	120.248	119.500	119.428	118.247	117.762	120.532	119.251	117.933	118.117	117.428	117.546	116.317	117.245
A45	3116K	128.816	129.265	128.429	128.337	127.108	126.695	129.370	128.137	126.909	127.443	126.407	126.799	125.637	125.950

**Normalized Luminous Flux data for tested units**  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs	
A1	2992K	1.0000	0.9998	0.9936	0.9909	0.9794	0.9776	1.0039	0.9951	0.9845	0.9874	0.9836	0.9845	0.9775	0.9778
A2	3008K	1.0000	1.0002	0.9973	0.9946	0.9843	0.9825	1.0047	0.9968	0.9884	0.9893	0.9865	0.9855	0.9791	0.9796
A3	2921K	1.0000	0.9976	0.9911	0.9875	0.9751	0.9735	0.9975	0.9887	0.9794	0.9826	0.9781	0.9771	0.9721	0.9721
A4	2975K	1.0000	1.0018	0.9913	0.9886	0.9767	0.9754	1.0014	0.9918	0.9833	0.9856	0.9808	0.9810	0.9750	0.9754
A5	2986K	1.0000	0.9979	0.9925	0.9914	0.9799	0.9760	0.9981	0.9896	0.9809	0.9855	0.9788	0.9786	0.9741	0.9736
A6	2992K	1.0000	0.9975	0.9951	0.9960	0.9847	0.9817	1.0078	0.9984	0.9905	0.9960	0.9889	0.9914	0.9863	0.9866
A7	2965K	1.0000	0.9983	0.9944	0.9984	0.9877	0.9841	1.0043	0.9961	0.9877	0.9947	0.9877	0.9892	0.9802	0.9827
A8	3026K	1.0000	0.9990	0.9927	0.9947	0.9822	0.9812	1.0013	0.9942	0.9868	0.9916	0.9861	0.9874	0.9808	0.9820
A9	3083K	1.0000	1.0002	0.9932	0.9947	0.9827	0.9809	1.0058	0.9958	0.9886	0.9940	0.9880	0.9894	0.9836	0.9890
A10	3048K	1.0000	1.0033	0.9961	0.9954	0.9837	0.9820	1.0071	0.9966	0.9893	0.9939	0.9875	0.9906	0.9831	0.9871
A21	3055K	1.0000	0.9958	0.9905	0.9895	0.9786	0.9769	1.0023	0.9914	0.9793	0.9863	0.9781	0.9821	0.9755	0.9759
A22	3026K	1.0000	0.9971	0.9906	0.9889	0.9783	0.9769	1.0034	0.9901	0.9816	0.9869	0.9772	0.9799	0.9730	0.9720
A23	3032K	1.0000	0.9967	0.9885	0.9855	0.9729	0.9702	0.9953	0.9830	0.9701	0.9776	0.9692	0.9698	0.9638	0.9642
A24	3043K	1.0000	0.9969	0.9902	0.9899	0.9793	0.9777	1.0025	0.9930	0.9843	0.9895	0.9823	0.9826	0.9776	0.9773
A25	3043K	1.0000	1.0024	0.9941	0.9920	0.9805	0.9784	1.0080	0.9949	0.9887	0.9947	0.9858	0.9870	0.9803	0.9805
A26	3104K	1.0000	1.0034	0.9949	0.9927	0.9815	0.9808	1.0042	0.9938	0.9855	0.9912	0.9807	0.9862	0.9763	0.9759
A27	3032K	1.0000	1.0014	0.9936	0.9920	0.9816	0.9798	1.0085	0.9974	0.9883	0.9953	0.9856	0.9879	0.9820	0.9821
A28	3056K	1.0000	0.9982	0.9923	0.9921	0.9829	0.9816	1.0102	1.0000	0.9909	0.9995	0.9896	0.9902	0.9859	0.9855
A29	3020K	1.0000	0.9974	0.9923	0.9919	0.9815	0.9817	1.0060	0.9963	0.9885	0.9958	0.9858	0.9860	0.9805	0.9819
A30	3002K	1.0000	0.9903	0.9776	0.9746	0.9626	0.9593	0.9811	0.9714	0.9627	0.9697	0.9602	0.9624	0.9543	0.9545
A41	3081K	1.0000	1.0009	0.9960	0.9950	0.9844	0.9821	0.9979	0.9895	0.9801	0.9858	0.9758	0.9776	0.9662	0.9712
A42	3049K	1.0000	0.9996	0.9949	0.9941	0.9842	0.9792	0.9957	0.9861	0.9780	0.9799	0.9749	0.9747	0.9661	0.9704
A43	3082K	1.0000	1.0029	0.9972	0.9966	0.9858	0.9809	0.9967	0.9895	0.9817	0.9869	0.9787	0.9795	0.9676	0.9744
A44	3009K	1.0000	0.9983	0.9921	0.9915	0.9817	0.9777	1.0007	0.9901	0.9791	0.9806	0.9749	0.9759	0.9657	0.9734
A45	3116K	1.0000	1.0035	0.9970	0.9963	0.9867	0.9835	1.0043	0.9947	0.9852	0.9893	0.9813	0.9843	0.9753	0.9777

**TM-21 Extrapolation of Luminous Flux data for tested units**  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

	CCT (t=0)	alpha	B	L70
A1	2992K	1.8137e-06	0.9960	194,436
A2	3008K	2.2007e-06	1.0011	162,575
A3	2921K	2.0218e-06	0.9918	172,348
A4	2975K	2.0803e-06	0.9956	169,327
A5	2986K	2.0681e-06	0.9939	169,495
A6	2992K	1.3477e-06	1.0000	264,651
A7	2965K	1.9275e-06	1.0014	185,769
A8	3026K	1.5967e-06	0.9977	221,921
A9	3083K	7.9385e-07	0.9947	442,578
A10	3048K	1.1653e-06	0.9973	303,748
A21	3055K	1.3183e-06	0.9892	262,363
A22	3026K	2.5362e-06	0.9972	139,536
A23	3032K	2.0785e-06	0.9843	163,994
A24	3043K	2.0501e-06	0.9975	172,744
A25	3043K	2.3912e-06	1.0040	150,821
A26	3104K	2.5408e-06	1.0015	140,967
A27	3032K	1.9818e-06	1.0016	180,802
A28	3056K	1.9260e-06	1.0046	187,595
A29	3020K	2.2721e-06	1.0033	158,449
A30	3002K	2.5287e-06	0.9790	132,662
A41	3081K	2.9700e-06	0.9981	119,445
A42	3049K	2.3387e-06	0.9912	148,738
A43	3082K	2.7385e-06	0.9984	129,660
A44	3009K	2.1234e-06	0.9906	163,516
A45	3116K	2.2186e-06	0.9987	160,167
ave	3029K	2.0393e-06	0.9963	173,100

**CIE 1976 u' data for tested units**  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	2992K	0.2507	0.2496	0.2490	0.2487	0.2483	0.2477	0.2473	0.2471	0.2472	0.2470	0.2470	0.2470	0.2470	0.2473
A2	3008K	0.2501	0.2490	0.2485	0.2482	0.2477	0.2472	0.2468	0.2466	0.2467	0.2466	0.2466	0.2466	0.2466	0.2470
A3	2921K	0.2534	0.2523	0.2518	0.2514	0.2510	0.2503	0.2500	0.2498	0.2499	0.2498	0.2498	0.2498	0.2498	0.2502
A4	2975K	0.2511	0.2500	0.2495	0.2492	0.2487	0.2481	0.2478	0.2476	0.2477	0.2476	0.2476	0.2476	0.2476	0.2481
A5	2986K	0.2507	0.2495	0.2491	0.2486	0.2482	0.2478	0.2474	0.2472	0.2473	0.2472	0.2472	0.2472	0.2472	0.2475
A6	2992K	0.2505	0.2493	0.2488	0.2485	0.2481	0.2475	0.2472	0.2470	0.2471	0.2470	0.2470	0.2469	0.2469	0.2474
A7	2965K	0.2515	0.2504	0.2499	0.2496	0.2492	0.2487	0.2483	0.2481	0.2482	0.2481	0.2481	0.2481	0.2481	0.2485
A8	3026K	0.2490	0.2480	0.2475	0.2471	0.2468	0.2460	0.2458	0.2456	0.2456	0.2455	0.2456	0.2456	0.2456	0.2459
A9	3083K	0.2472	0.2460	0.2456	0.2452	0.2449	0.2443	0.2439	0.2438	0.2438	0.2437	0.2437	0.2438	0.2437	0.2441
A10	3048K	0.2485	0.2473	0.2468	0.2465	0.2461	0.2454	0.2451	0.2449	0.2450	0.2448	0.2449	0.2449	0.2449	0.2454
A21	3055K	0.2492	0.2481	0.2476	0.2473	0.2469	0.2463	0.2459	0.2458	0.2458	0.2457	0.2458	0.2457	0.2457	0.2461
A22	3026K	0.2500	0.2489	0.2485	0.2481	0.2477	0.2471	0.2467	0.2466	0.2465	0.2465	0.2465	0.2464	0.2465	0.2470
A23	3032K	0.2495	0.2483	0.2479	0.2475	0.2472	0.2465	0.2461	0.2459	0.2460	0.2459	0.2459	0.2459	0.2459	0.2464
A24	3043K	0.2491	0.2480	0.2475	0.2471	0.2468	0.2462	0.2458	0.2457	0.2457	0.2456	0.2456	0.2456	0.2457	0.2461
A25	3043K	0.2489	0.2478	0.2473	0.2470	0.2466	0.2460	0.2455	0.2454	0.2454	0.2453	0.2454	0.2454	0.2454	0.2459
A26	3104K	0.2464	0.2453	0.2449	0.2445	0.2441	0.2435	0.2431	0.2430	0.2430	0.2429	0.2430	0.2429	0.2430	0.2435
A27	3032K	0.2490	0.2479	0.2474	0.2471	0.2466	0.2460	0.2456	0.2454	0.2455	0.2454	0.2454	0.2454	0.2455	0.2459
A28	3056K	0.2482	0.2472	0.2467	0.2464	0.2460	0.2453	0.2449	0.2447	0.2447	0.2446	0.2447	0.2447	0.2447	0.2451
A29	3020K	0.2496	0.2484	0.2480	0.2477	0.2474	0.2465	0.2461	0.2460	0.2460	0.2459	0.2459	0.2459	0.2459	0.2464
A30	3002K	0.2506	0.2491	0.2486	0.2482	0.2478	0.2472	0.2468	0.2468	0.2468	0.2467	0.2467	0.2466	0.2467	0.2471
A41	3081K	0.2482	0.2471	0.2467	0.2462	0.2458	0.2452	0.2449	0.2448	0.2449	0.2448	0.2449	0.2449	0.2451	0.2460
A42	3049K	0.2490	0.2479	0.2474	0.2469	0.2465	0.2460	0.2456	0.2456	0.2456	0.2455	0.2456	0.2457	0.2459	0.2468
A43	3082K	0.2477	0.2466	0.2461	0.2456	0.2452	0.2447	0.2443	0.2443	0.2443	0.2442	0.2443	0.2443	0.2445	0.2454
A44	3009K	0.2512	0.2501	0.2496	0.2491	0.2486	0.2481	0.2477	0.2476	0.2477	0.2476	0.2477	0.2478	0.2480	0.2490
A45	3116K	0.2467	0.2456	0.2451	0.2447	0.2442	0.2437	0.2434	0.2433	0.2433	0.2432	0.2434	0.2434	0.2435	0.2444

**CIE 1976 v' data for tested units**  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	2992K	0.5223	0.5219	0.5219	0.5221	0.5221	0.5212	0.5208	0.5208	0.5209	0.5210	0.5207	0.5209	0.5208	0.5210
A2	3008K	0.5218	0.5212	0.5212	0.5214	0.5212	0.5206	0.5202	0.5203	0.5203	0.5203	0.5201	0.5202	0.5202	0.5204
A3	2921K	0.5233	0.5227	0.5228	0.5230	0.5228	0.5221	0.5218	0.5218	0.5219	0.5220	0.5217	0.5218	0.5218	0.5220
A4	2975K	0.5231	0.5227	0.5227	0.5230	0.5228	0.5219	0.5216	0.5217	0.5217	0.5218	0.5215	0.5217	0.5217	0.5218
A5	2986K	0.5233	0.5228	0.5228	0.5228	0.5228	0.5226	0.5222	0.5222	0.5223	0.5223	0.5220	0.5222	0.5222	0.5223
A6	2992K	0.5230	0.5225	0.5226	0.5228	0.5227	0.5219	0.5217	0.5218	0.5218	0.5218	0.5215	0.5217	0.5216	0.5218
A7	2965K	0.5231	0.5227	0.5227	0.5228	0.5228	0.5222	0.5219	0.5219	0.5220	0.5219	0.5217	0.5218	0.5219	0.5220
A8	3026K	0.5233	0.5229	0.5230	0.5232	0.5231	0.5221	0.5218	0.5218	0.5219	0.5219	0.5217	0.5219	0.5219	0.5220
A9	3083K	0.5219	0.5215	0.5216	0.5218	0.5218	0.5208	0.5203	0.5203	0.5204	0.5204	0.5202	0.5203	0.5203	0.5204
A10	3048K	0.5221	0.5216	0.5217	0.5220	0.5220	0.5208	0.5205	0.5205	0.5206	0.5206	0.5204	0.5205	0.5205	0.5207
A21	3055K	0.5184	0.5178	0.5179	0.5180	0.5179	0.5170	0.5166	0.5167	0.5166	0.5167	0.5163	0.5164	0.5162	0.5165
A22	3026K	0.5194	0.5188	0.5189	0.5190	0.5189	0.5180	0.5176	0.5177	0.5176	0.5176	0.5174	0.5175	0.5175	0.5177
A23	3032K	0.5207	0.5202	0.5203	0.5205	0.5203	0.5193	0.5190	0.5190	0.5190	0.5191	0.5187	0.5189	0.5189	0.5191
A24	3043K	0.5205	0.5199	0.5199	0.5200	0.5199	0.5192	0.5189	0.5190	0.5190	0.5190	0.5187	0.5189	0.5189	0.5191
A25	3043K	0.5211	0.5206	0.5207	0.5209	0.5206	0.5198	0.5195	0.5196	0.5195	0.5196	0.5192	0.5194	0.5194	0.5196
A26	3104K	0.5214	0.5209	0.5210	0.5212	0.5210	0.5199	0.5197	0.5198	0.5197	0.5197	0.5195	0.5196	0.5197	0.5198
A27	3032K	0.5224	0.5219	0.5220	0.5221	0.5219	0.5211	0.5207	0.5208	0.5208	0.5208	0.5205	0.5207	0.5207	0.5208
A28	3056K	0.5217	0.5212	0.5212	0.5213	0.5211	0.5205	0.5201	0.5202	0.5201	0.5201	0.5198	0.5199	0.5198	0.5201
A29	3020K	0.5222	0.5217	0.5218	0.5219	0.5218	0.5209	0.5207	0.5208	0.5207	0.5207	0.5205	0.5207	0.5206	0.5208
A30	3002K	0.5210	0.5204	0.5204	0.5205	0.5204	0.5196	0.5193	0.5193	0.5194	0.5194	0.5192	0.5193	0.5193	0.5194
A41	3081K	0.5181	0.5175	0.5175	0.5176	0.5174	0.5165	0.5162	0.5163	0.5162	0.5162	0.5161	0.5163	0.5162	0.5167
A42	3049K	0.5198	0.5192	0.5192	0.5194	0.5191	0.5181	0.5178	0.5179	0.5178	0.5180	0.5178	0.5179	0.5179	0.5183
A43	3082K	0.5199	0.5192	0.5191	0.5190	0.5187	0.5178	0.5175	0.5175	0.5175	0.5176	0.5174	0.5175	0.5175	0.5179
A44	3009K	0.5174	0.5167	0.5165	0.5165	0.5161	0.5151	0.5148	0.5149	0.5148	0.5150	0.5148	0.5150	0.5149	0.5155
A45	3116K	0.5188	0.5181	0.5182	0.5183	0.5178	0.5169	0.5167	0.5168	0.5167	0.5168	0.5166	0.5167	0.5166	0.5171

**Delta u'v' data for tested units**  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	2992K	0.0000	0.0012	0.0017	0.0020	0.0024	0.0032	0.0037	0.0039	0.0038	0.0039	0.0040	0.0040	0.0040	0.0036
A2	3008K	0.0000	0.0013	0.0017	0.0019	0.0025	0.0031	0.0037	0.0038	0.0037	0.0038	0.0039	0.0038	0.0038	0.0034
A3	2921K	0.0000	0.0013	0.0017	0.0020	0.0025	0.0033	0.0037	0.0039	0.0038	0.0038	0.0039	0.0039	0.0039	0.0035
A4	2975K	0.0000	0.0012	0.0016	0.0019	0.0024	0.0032	0.0036	0.0038	0.0037	0.0037	0.0038	0.0038	0.0038	0.0033
A5	2986K	0.0000	0.0013	0.0017	0.0022	0.0025	0.0030	0.0035	0.0037	0.0035	0.0036	0.0037	0.0037	0.0037	0.0034
A6	2992K	0.0000	0.0013	0.0017	0.0020	0.0024	0.0032	0.0035	0.0037	0.0036	0.0037	0.0038	0.0038	0.0039	0.0033
A7	2965K	0.0000	0.0012	0.0016	0.0019	0.0023	0.0029	0.0034	0.0036	0.0035	0.0036	0.0037	0.0036	0.0036	0.0032
A8	3026K	0.0000	0.0011	0.0015	0.0019	0.0022	0.0032	0.0035	0.0037	0.0037	0.0038	0.0038	0.0037	0.0037	0.0034
A9	3083K	0.0000	0.0013	0.0016	0.0020	0.0023	0.0031	0.0037	0.0038	0.0037	0.0038	0.0039	0.0038	0.0038	0.0034
A10	3048K	0.0000	0.0013	0.0017	0.0020	0.0024	0.0034	0.0038	0.0039	0.0038	0.0040	0.0040	0.0039	0.0039	0.0034
A21	3055K	0.0000	0.0013	0.0017	0.0019	0.0024	0.0032	0.0038	0.0038	0.0038	0.0039	0.0040	0.0040	0.0041	0.0036
A22	3026K	0.0000	0.0013	0.0016	0.0019	0.0024	0.0032	0.0038	0.0038	0.0039	0.0039	0.0040	0.0041	0.0040	0.0034
A23	3032K	0.0000	0.0013	0.0016	0.0020	0.0023	0.0033	0.0038	0.0040	0.0039	0.0039	0.0041	0.0040	0.0040	0.0035
A24	3043K	0.0000	0.0013	0.0017	0.0021	0.0024	0.0032	0.0037	0.0037	0.0037	0.0038	0.0039	0.0038	0.0038	0.0033
A25	3043K	0.0000	0.0012	0.0016	0.0019	0.0024	0.0032	0.0038	0.0038	0.0038	0.0039	0.0040	0.0039	0.0039	0.0034
A26	3104K	0.0000	0.0012	0.0016	0.0019	0.0023	0.0033	0.0037	0.0038	0.0038	0.0039	0.0039	0.0039	0.0038	0.0033
A27	3032K	0.0000	0.0012	0.0016	0.0019	0.0025	0.0033	0.0038	0.0039	0.0038	0.0039	0.0041	0.0040	0.0039	0.0035
A28	3056K	0.0000	0.0011	0.0016	0.0018	0.0023	0.0031	0.0037	0.0038	0.0038	0.0039	0.0040	0.0039	0.0040	0.0035
A29	3020K	0.0000	0.0013	0.0016	0.0019	0.0022	0.0034	0.0038	0.0039	0.0039	0.0040	0.0041	0.0040	0.0040	0.0035
A30	3002K	0.0000	0.0016	0.0021	0.0025	0.0029	0.0037	0.0042	0.0042	0.0041	0.0042	0.0043	0.0043	0.0043	0.0038
A41	3081K	0.0000	0.0013	0.0016	0.0021	0.0025	0.0034	0.0038	0.0038	0.0038	0.0038	0.0039	0.0038	0.0036	0.0026
A42	3049K	0.0000	0.0013	0.0017	0.0021	0.0026	0.0034	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038	0.0036	0.0027
A43	3082K	0.0000	0.0013	0.0018	0.0023	0.0028	0.0037	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0040	0.0030
A44	3009K	0.0000	0.0013	0.0018	0.0023	0.0029	0.0039	0.0044	0.0044	0.0044	0.0043	0.0044	0.0042	0.0041	0.0029
A45	3116K	0.0000	0.0013	0.0017	0.0021	0.0027	0.0036	0.0039	0.0039	0.0040	0.0040	0.0040	0.0039	0.0039	0.0029

Forward Voltage [V] data for tested units  
**DATASET 15 (LXH9-PW30): Ts = Tair = 55°C, If = 700mA**  
**Ts ≥ 53°C and Tair ≥ 50°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	2992K	3.166	3.157	3.152	3.148	3.142	3.140	3.141	3.144	3.151	3.152	3.145	3.153	3.160	3.159
A2	3008K	3.300	3.264	3.242	3.228	3.214	3.209	3.209	3.215	3.220	3.222	3.219	3.226	3.233	3.236
A3	2921K	3.204	3.192	3.189	3.183	3.179	3.178	3.178	3.178	3.188	3.189	3.181	3.191	3.199	3.198
A4	2975K	3.251	3.239	3.236	3.229	3.224	3.225	3.225	3.229	3.236	3.238	3.230	3.239	3.251	3.249
A5	2986K	3.135	3.126	3.121	3.118	3.113	3.113	3.114	3.116	3.121	3.119	3.113	3.120	3.125	3.124
A6	2992K	3.138	3.132	3.127	3.124	3.122	3.123	3.122	3.128	3.138	3.137	3.137	3.147	3.160	3.167
A7	2965K	3.141	3.135	3.130	3.126	3.125	3.126	3.129	3.134	3.144	3.149	3.149	3.161	3.174	3.185
A8	3026K	3.133	3.126	3.120	3.116	3.110	3.113	3.114	3.115	3.123	3.121	3.116	3.123	3.130	3.128
A9	3083K	3.157	3.150	3.147	3.142	3.139	3.138	3.141	3.143	3.149	3.151	3.147	3.156	3.163	3.165
A10	3048K	3.209	3.200	3.194	3.187	3.183	3.181	3.183	3.187	3.193	3.192	3.187	3.196	3.205	3.205
A21	3055K	3.127	3.117	3.111	3.108	3.105	3.107	3.108	3.113	3.120	3.121	3.122	3.133	3.142	3.151
A22	3026K	3.125	3.114	3.111	3.109	3.106	3.105	3.108	3.110	3.117	3.115	3.110	3.118	3.125	3.125
A23	3032K	3.264	3.252	3.236	3.220	3.207	3.199	3.195	3.194	3.196	3.193	3.186	3.193	3.197	3.196
A24	3043K	3.300	3.270	3.260	3.251	3.245	3.241	3.242	3.247	3.252	3.253	3.246	3.256	3.261	3.263
A25	3043K	3.186	3.176	3.170	3.166	3.162	3.161	3.163	3.165	3.172	3.173	3.167	3.178	3.185	3.187
A26	3104K	3.261	3.249	3.245	3.238	3.234	3.233	3.235	3.239	3.246	3.247	3.243	3.254	3.265	3.268
A27	3032K	3.227	3.216	3.212	3.206	3.202	3.203	3.203	3.207	3.217	3.219	3.214	3.225	3.237	3.242
A28	3056K	3.150	3.140	3.140	3.136	3.133	3.135	3.139	3.148	3.157	3.165	3.164	3.179	3.193	3.207
A29	3020K	3.102	3.095	3.091	3.088	3.085	3.087	3.086	3.090	3.095	3.098	3.093	3.102	3.109	3.111
A30	3002K	3.333	3.306	3.265	3.237	3.219	3.208	3.201	3.201	3.202	3.200	3.195	3.200	3.204	3.206
A41	3081K	3.246	3.213	3.198	3.188	3.180	3.175	3.175	3.179	3.181	3.183	3.177	3.184	3.188	3.191
A42	3049K	3.171	3.158	3.153	3.148	3.141	3.142	3.145	3.148	3.153	3.155	3.151	3.158	3.166	3.169
A43	3082K	3.167	3.151	3.143	3.137	3.132	3.131	3.131	3.136	3.140	3.142	3.138	3.145	3.153	3.158
A44	3009K	3.272	3.216	3.195	3.185	3.174	3.171	3.168	3.172	3.174	3.174	3.166	3.169	3.175	3.177
A45	3116K	3.257	3.247	3.242	3.236	3.233	3.232	3.235	3.242	3.252	3.256	3.253	3.267	3.282	3.295

**Luminous Flux [lm] data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
B11	3082K	123.657	124.303	123.439	123.384	122.546	121.642	124.412	122.434	121.828	121.605	120.878	120.504	118.961	118.745
B12	3036K	124.126	124.101	123.117	122.991	122.231	121.264	124.312	122.378	121.817	121.657	121.077	120.495	119.463	118.665
B13	2987K	107.722	106.876	106.485	106.763	106.423	105.924	108.546	106.860	106.434	106.321	105.842	105.510	104.887	104.158
B14	2963K	117.697	117.938	117.171	117.053	116.302	115.395	117.870	115.681	115.258	115.187	114.533	114.094	113.290	112.413
B15	3033K	120.846	120.640	119.868	119.938	119.378	118.945	121.508	119.471	118.887	118.860	118.204	117.522	116.559	115.520
B16	3030K	121.816	121.769	120.549	120.445	119.732	118.892	121.231	119.320	118.856	118.702	118.111	117.581	116.685	115.488
B17	2934K	116.898	117.372	116.184	116.043	115.191	114.383	116.998	114.958	114.585	114.436	113.866	113.437	112.492	111.670
B18	3017K	120.498	121.182	120.549	120.618	119.754	118.916	122.552	120.403	119.838	119.548	118.801	118.110	117.251	116.210
B19	3033K	120.380	120.334	119.546	119.517	118.776	118.010	120.217	118.111	117.772	117.599	117.107	116.575	115.760	114.684
B20	2957K	108.750	107.799	107.263	107.371	106.518	106.112	107.997	106.123	105.946	105.678	105.354	104.897	104.063	103.173
B31	3020K	120.064	120.990	120.516	120.493	119.238	117.052	119.498	117.636	117.021	116.873	116.326	115.707	114.852	114.022
B32	3130K	125.608	124.892	122.633	124.003	122.986	122.122	125.304	123.290	122.816	122.784	122.214	121.549	120.785	120.032
B33	3078K	123.435	122.888	122.390	122.697	122.406	121.386	124.136	122.013	121.603	121.528	120.945	120.279	119.408	118.562
B34	3067K	131.829	133.043	132.361	132.737	132.577	132.680	135.375	133.290	132.597	132.255	131.625	130.612	129.667	128.418
B35	3086K	125.929	125.501	124.724	124.890	124.072	123.360	126.392	124.536	123.753	123.313	122.839	122.219	121.117	120.244
B36	3091K	123.079	123.203	122.673	123.214	123.239	121.486	124.580	122.814	122.150	121.319	120.658	120.342	119.393	118.283
B37	3058K	125.456	125.556	124.715	124.792	124.381	123.321	125.757	123.758	123.286	123.089	122.628	121.511	121.200	120.254
B38	3144K	124.709	124.621	124.060	124.653	124.609	122.615	125.225	123.167	122.826	122.643	122.246	121.424	120.665	119.932
B39	3037K	125.754	125.845	125.113	125.275	124.798	124.177	126.202	124.354	123.681	123.626	123.140	122.548	121.628	120.561
B40	3074K	125.703	125.763	125.135	125.334	124.774	124.608	126.979	124.729	124.149	124.026	123.510	122.896	121.930	120.911
B51	3018K	116.447	115.959	114.995	115.051	114.152	113.239	116.142	114.480	114.247	114.012	114.219	113.860	112.852	112.195
B52	3072K	120.316	120.454	119.574	119.946	119.747	120.166	122.570	120.746	120.354	120.272	119.850	118.944	117.046	117.015
B53	3116K	127.157	126.788	125.988	126.215	125.610	125.923	129.081	127.362	126.910	126.806	126.159	125.742	124.983	124.131
B54	2993K	125.193	125.558	124.554	124.564	123.764	124.173	127.300	125.444	124.852	124.638	124.121	123.593	122.540	121.548
B55	3066K	124.540	124.169	123.302	123.560	123.128	123.046	125.626	123.534	123.247	123.204	122.801	122.565	121.090	120.141

**Normalized Luminous Flux data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
B11	3082K	1.0000	1.0052	0.9982	0.9978	0.9910	0.9837	1.0061	0.9901	0.9852	0.9834	0.9775	0.9745	0.9620	0.9603
B12	3036K	1.0000	0.9998	0.9919	0.9909	0.9847	0.9769	1.0015	0.9859	0.9814	0.9801	0.9754	0.9707	0.9624	0.9560
B13	2987K	1.0000	0.9921	0.9885	0.9911	0.9879	0.9833	1.0076	0.9920	0.9880	0.9870	0.9826	0.9795	0.9737	0.9669
B14	2963K	1.0000	1.0021	0.9955	0.9945	0.9881	0.9804	1.0015	0.9829	0.9793	0.9787	0.9731	0.9694	0.9626	0.9551
B15	3033K	1.0000	0.9983	0.9919	0.9925	0.9879	0.9843	1.0055	0.9886	0.9838	0.9836	0.9781	0.9725	0.9645	0.9559
B16	3030K	1.0000	0.9996	0.9896	0.9887	0.9829	0.9760	0.9952	0.9795	0.9757	0.9744	0.9696	0.9652	0.9579	0.9481
B17	2934K	1.0000	1.0041	0.9939	0.9927	0.9854	0.9785	1.0009	0.9834	0.9802	0.9789	0.9741	0.9704	0.9623	0.9553
B18	3017K	1.0000	1.0057	1.0004	1.0010	0.9938	0.9869	1.0170	0.9992	0.9945	0.9921	0.9859	0.9802	0.9731	0.9644
B19	3033K	1.0000	0.9996	0.9931	0.9928	0.9867	0.9803	0.9986	0.9812	0.9783	0.9769	0.9728	0.9684	0.9616	0.9527
B20	2957K	1.0000	0.9913	0.9863	0.9873	0.9795	0.9757	0.9931	0.9758	0.9742	0.9718	0.9688	0.9646	0.9569	0.9487
B31	3020K	1.0000	1.0077	1.0038	1.0036	0.9931	0.9749	0.9953	0.9798	0.9747	0.9734	0.9689	0.9637	0.9566	0.9497
B32	3130K	1.0000	0.9943	0.9763	0.9872	0.9791	0.9722	0.9976	0.9815	0.9778	0.9775	0.9730	0.9677	0.9616	0.9556
B33	3078K	1.0000	0.9956	0.9915	0.9940	0.9917	0.9834	1.0057	0.9885	0.9852	0.9846	0.9798	0.9744	0.9674	0.9605
B34	3067K	1.0000	1.0092	1.0040	1.0069	1.0057	1.0065	1.0269	1.0111	1.0058	1.0032	0.9985	0.9908	0.9836	0.9741
B35	3086K	1.0000	0.9966	0.9904	0.9917	0.9853	0.9796	1.0037	0.9889	0.9827	0.9792	0.9755	0.9705	0.9618	0.9549
B36	3091K	1.0000	1.0010	0.9967	1.0011	1.0013	0.9871	1.0122	0.9978	0.9924	0.9857	0.9803	0.9778	0.9700	0.9610
B37	3058K	1.0000	1.0008	0.9941	0.9947	0.9914	0.9830	1.0024	0.9865	0.9827	0.9811	0.9775	0.9686	0.9661	0.9585
B38	3144K	1.0000	0.9993	0.9948	0.9995	0.9992	0.9832	1.0041	0.9876	0.9849	0.9834	0.9803	0.9737	0.9676	0.9617
B39	3037K	1.0000	1.0007	0.9949	0.9962	0.9924	0.9875	1.0036	0.9889	0.9835	0.9831	0.9792	0.9745	0.9672	0.9587
B40	3074K	1.0000	1.0005	0.9955	0.9971	0.9926	0.9913	1.0102	0.9923	0.9876	0.9867	0.9826	0.9777	0.9700	0.9619
B51	3018K	1.0000	0.9958	0.9875	0.9880	0.9803	0.9725	0.9974	0.9831	0.9811	0.9791	0.9809	0.9778	0.9701	0.9635
B52	3072K	1.0000	1.0011	0.9938	0.9969	0.9953	0.9988	1.0187	1.0036	1.0003	0.9996	0.9961	0.9886	0.9728	0.9726
B53	3116K	1.0000	0.9971	0.9908	0.9926	0.9878	0.9903	1.0151	1.0016	0.9981	0.9972	0.9922	0.9889	0.9829	0.9762
B54	2993K	1.0000	1.0029	0.9949	0.9950	0.9886	0.9919	1.0168	1.0020	0.9973	0.9956	0.9914	0.9872	0.9788	0.9709
B55	3066K	1.0000	0.9970	0.9901	0.9921	0.9887	0.9880	1.0087	0.9919	0.9896	0.9893	0.9860	0.9841	0.9723	0.9647

**TM-21 Extrapolation of Luminous Flux data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	alpha	B	L70
B11	3082K	5.6339e-06	1.0158	66,091
B12	3036K	5.4413e-06	1.0114	67,637
B13	2987K	4.3413e-06	1.0120	84,906
B14	2963K	5.1046e-06	1.0075	71,335
B15	3033K	5.9451e-06	1.0174	62,894
B16	3030K	5.7041e-06	1.0073	63,802
B17	2934K	5.2574e-06	1.0092	69,580
B18	3017K	6.2218e-06	1.0285	61,848
B19	3033K	5.2768e-06	1.0075	69,011
B20	2957K	5.2332e-06	1.0027	68,672
B31	3020K	5.3566e-06	1.0040	67,328
B32	3130K	4.8380e-06	1.0046	74,678
B33	3078K	5.2847e-06	1.0147	70,253
B34	3067K	6.4897e-06	1.0421	61,316
B35	3086K	5.7944e-06	1.0138	63,925
B36	3091K	6.0420e-06	1.0232	62,822
B37	3058K	5.1448e-06	1.0106	71,382
B38	3144K	4.9920e-06	1.0124	73,922
B39	3037K	5.1836e-06	1.0129	71,290
B40	3074K	5.3789e-06	1.0179	69,616
B51	3018K	3.5565e-06	1.0016	100,735
B52	3072K	6.5675e-06	1.0382	60,013
B53	3116K	4.4986e-06	1.0232	84,374
B54	2993K	5.4082e-06	1.0277	70,997
B55	3066K	5.1844e-06	1.0199	72,591
ave	3044K	5.3562e-06	1.0154	69,450

**CIE 1976 u' data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
B11	3082K	0.2474	0.2463	0.2459	0.2454	0.2449	0.2445	0.2442	0.2442	0.2443	0.2443	0.2445	0.2445	0.2448	0.2455
B12	3036K	0.2491	0.2479	0.2475	0.2470	0.2465	0.2461	0.2457	0.2457	0.2458	0.2459	0.2461	0.2462	0.2464	0.2471
B13	2987K	0.2510	0.2501	0.2497	0.2493	0.2488	0.2484	0.2480	0.2480	0.2480	0.2480	0.2481	0.2481	0.2482	0.2487
B14	2963K	0.2520	0.2509	0.2504	0.2500	0.2494	0.2489	0.2486	0.2486	0.2486	0.2486	0.2487	0.2488	0.2490	0.2496
B15	3033K	0.2485	0.2474	0.2470	0.2466	0.2460	0.2455	0.2452	0.2452	0.2452	0.2452	0.2452	0.2453	0.2454	0.2460
B16	3030K	0.2490	0.2478	0.2474	0.2469	0.2463	0.2460	0.2456	0.2456	0.2456	0.2456	0.2457	0.2459	0.2460	0.2466
B17	2934K	0.2532	0.2520	0.2516	0.2511	0.2505	0.2501	0.2498	0.2498	0.2498	0.2497	0.2498	0.2499	0.2500	0.2507
B18	3017K	0.2503	0.2492	0.2487	0.2483	0.2478	0.2474	0.2470	0.2470	0.2471	0.2471	0.2472	0.2473	0.2474	0.2482
B19	3033K	0.2489	0.2478	0.2474	0.2470	0.2465	0.2461	0.2458	0.2457	0.2458	0.2458	0.2458	0.2459	0.2460	0.2466
B20	2957K	0.2524	0.2512	0.2508	0.2504	0.2499	0.2494	0.2491	0.2490	0.2490	0.2490	0.2490	0.2490	0.2491	0.2495
B31	3020K	0.2507	0.2496	0.2491	0.2486	0.2481	0.2477	0.2474	0.2474	0.2475	0.2475	0.2476	0.2477	0.2479	0.2485
B32	3130K	0.2471	0.2461	0.2456	0.2451	0.2446	0.2442	0.2439	0.2440	0.2441	0.2442	0.2444	0.2446	0.2448	0.2455
B33	3078K	0.2479	0.2468	0.2464	0.2459	0.2453	0.2449	0.2446	0.2446	0.2447	0.2448	0.2450	0.2451	0.2454	0.2461
B34	3067K	0.2485	0.2474	0.2469	0.2463	0.2459	0.2453	0.2450	0.2450	0.2452	0.2455	0.2457	0.2459	0.2463	0.2473
B35	3086K	0.2476	0.2466	0.2461	0.2456	0.2451	0.2448	0.2445	0.2445	0.2446	0.2449	0.2450	0.2453	0.2456	0.2464
B36	3091K	0.2483	0.2473	0.2469	0.2464	0.2459	0.2454	0.2451	0.2451	0.2452	0.2455	0.2457	0.2458	0.2460	0.2468
B37	3058K	0.2487	0.2477	0.2473	0.2468	0.2462	0.2458	0.2454	0.2453	0.2455	0.2455	0.2457	0.2458	0.2460	0.2467
B38	3144K	0.2458	0.2448	0.2444	0.2440	0.2436	0.2431	0.2428	0.2428	0.2429	0.2429	0.2430	0.2432	0.2433	0.2440
B39	3037K	0.2498	0.2487	0.2483	0.2478	0.2472	0.2468	0.2464	0.2464	0.2465	0.2465	0.2466	0.2467	0.2469	0.2475
B40	3074K	0.2485	0.2474	0.2469	0.2465	0.2460	0.2455	0.2451	0.2451	0.2451	0.2452	0.2453	0.2454	0.2456	0.2462
B51	3018K	0.2508	0.2497	0.2493	0.2488	0.2482	0.2478	0.2475	0.2474	0.2475	0.2476	0.2478	0.2479	0.2480	0.2489
B52	3072K	0.2479	0.2469	0.2465	0.2459	0.2453	0.2450	0.2445	0.2445	0.2446	0.2446	0.2447	0.2448	0.2445	0.2457
B53	3116K	0.2462	0.2451	0.2448	0.2443	0.2438	0.2434	0.2429	0.2428	0.2429	0.2429	0.2429	0.2430	0.2431	0.2437
B54	2993K	0.2508	0.2497	0.2493	0.2488	0.2483	0.2479	0.2475	0.2474	0.2476	0.2476	0.2477	0.2479	0.2481	0.2488
B55	3066K	0.2481	0.2470	0.2467	0.2462	0.2456	0.2452	0.2448	0.2448	0.2448	0.2447	0.2447	0.2448	0.2449	0.2454

**CIE 1976 v' data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
B11	3082K	0.5210	0.5205	0.5207	0.5205	0.5197	0.5195	0.5194	0.5193	0.5192	0.5193	0.5191	0.5192	0.5191	0.5193
B12	3036K	0.5216	0.5211	0.5212	0.5211	0.5205	0.5201	0.5201	0.5200	0.5198	0.5199	0.5197	0.5198	0.5197	0.5200
B13	2987K	0.5217	0.5213	0.5214	0.5215	0.5208	0.5205	0.5204	0.5204	0.5203	0.5204	0.5202	0.5202	0.5202	0.5204
B14	2963K	0.5216	0.5211	0.5212	0.5211	0.5202	0.5199	0.5199	0.5198	0.5196	0.5198	0.5196	0.5196	0.5196	0.5198
B15	3033K	0.5242	0.5238	0.5238	0.5239	0.5230	0.5226	0.5226	0.5225	0.5224	0.5224	0.5223	0.5223	0.5222	0.5225
B16	3030K	0.5228	0.5223	0.5223	0.5222	0.5214	0.5211	0.5209	0.5209	0.5208	0.5209	0.5207	0.5207	0.5206	0.5209
B17	2934K	0.5215	0.5210	0.5211	0.5210	0.5203	0.5199	0.5198	0.5197	0.5196	0.5197	0.5196	0.5196	0.5195	0.5198
B18	3017K	0.5196	0.5191	0.5191	0.5192	0.5187	0.5183	0.5183	0.5182	0.5180	0.5181	0.5180	0.5181	0.5180	0.5183
B19	3033K	0.5225	0.5220	0.5221	0.5221	0.5214	0.5209	0.5208	0.5207	0.5206	0.5207	0.5205	0.5206	0.5205	0.5208
B20	2957K	0.5211	0.5206	0.5208	0.5208	0.5203	0.5197	0.5196	0.5196	0.5194	0.5195	0.5193	0.5194	0.5193	0.5195
B31	3020K	0.5177	0.5172	0.5174	0.5174	0.5168	0.5167	0.5167	0.5166	0.5165	0.5167	0.5165	0.5166	0.5165	0.5168
B32	3130K	0.5155	0.5149	0.5151	0.5147	0.5136	0.5133	0.5132	0.5131	0.5130	0.5131	0.5130	0.5131	0.5130	0.5133
B33	3078K	0.5198	0.5192	0.5194	0.5192	0.5185	0.5183	0.5184	0.5183	0.5182	0.5183	0.5182	0.5183	0.5181	0.5185
B34	3067K	0.5193	0.5189	0.5191	0.5186	0.5180	0.5179	0.5178	0.5177	0.5177	0.5179	0.5177	0.5178	0.5177	0.5180
B35	3086K	0.5196	0.5190	0.5192	0.5189	0.5180	0.5177	0.5177	0.5175	0.5175	0.5178	0.5176	0.5176	0.5176	0.5179
B36	3091K	0.5165	0.5158	0.5160	0.5161	0.5155	0.5151	0.5151	0.5149	0.5148	0.5153	0.5151	0.5152	0.5150	0.5154
B37	3058K	0.5195	0.5190	0.5192	0.5191	0.5181	0.5179	0.5179	0.5178	0.5176	0.5178	0.5176	0.5177	0.5176	0.5180
B38	3144K	0.5181	0.5175	0.5177	0.5179	0.5175	0.5171	0.5170	0.5169	0.5168	0.5169	0.5167	0.5169	0.5167	0.5170
B39	3037K	0.5187	0.5182	0.5183	0.5183	0.5174	0.5172	0.5172	0.5171	0.5170	0.5172	0.5170	0.5171	0.5170	0.5173
B40	3074K	0.5182	0.5176	0.5178	0.5176	0.5168	0.5165	0.5165	0.5164	0.5163	0.5164	0.5163	0.5164	0.5163	0.5166
B51	3018K	0.5175	0.5170	0.5172	0.5169	0.5160	0.5158	0.5158	0.5156	0.5155	0.5155	0.5152	0.5153	0.5153	0.5155
B52	3072K	0.5207	0.5201	0.5204	0.5200	0.5192	0.5190	0.5189	0.5188	0.5186	0.5187	0.5185	0.5185	0.5186	0.5187
B53	3116K	0.5207	0.5203	0.5206	0.5205	0.5197	0.5196	0.5197	0.5196	0.5195	0.5196	0.5193	0.5193	0.5193	0.5195
B54	2993K	0.5213	0.5208	0.5208	0.5208	0.5206	0.5203	0.5204	0.5204	0.5203	0.5204	0.5201	0.5203	0.5202	0.5204
B55	3066K	0.5209	0.5205	0.5207	0.5206	0.5198	0.5196	0.5195	0.5195	0.5193	0.5194	0.5192	0.5193	0.5191	0.5194

**Delta u'v' data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
B11	3082K	0.0000	0.0012	0.0015	0.0021	0.0028	0.0033	0.0036	0.0036	0.0036	0.0035	0.0035	0.0034	0.0032	0.0025
B12	3036K	0.0000	0.0013	0.0016	0.0022	0.0028	0.0034	0.0037	0.0038	0.0038	0.0036	0.0036	0.0034	0.0033	0.0026
B13	2987K	0.0000	0.0010	0.0013	0.0017	0.0024	0.0029	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0032	0.0026
B14	2963K	0.0000	0.0012	0.0016	0.0021	0.0030	0.0035	0.0038	0.0038	0.0039	0.0038	0.0039	0.0038	0.0036	0.0030
B15	3033K	0.0000	0.0012	0.0016	0.0019	0.0028	0.0034	0.0037	0.0037	0.0038	0.0038	0.0038	0.0037	0.0037	0.0030
B16	3030K	0.0000	0.0013	0.0017	0.0022	0.0030	0.0034	0.0039	0.0039	0.0039	0.0039	0.0039	0.0037	0.0037	0.0031
B17	2934K	0.0000	0.0013	0.0016	0.0022	0.0030	0.0035	0.0038	0.0038	0.0039	0.0039	0.0039	0.0038	0.0038	0.0030
B18	3017K	0.0000	0.0012	0.0017	0.0020	0.0027	0.0032	0.0035	0.0036	0.0036	0.0035	0.0035	0.0034	0.0033	0.0025
B19	3033K	0.0000	0.0012	0.0016	0.0019	0.0026	0.0032	0.0035	0.0037	0.0036	0.0036	0.0037	0.0036	0.0035	0.0029
B20	2957K	0.0000	0.0013	0.0016	0.0020	0.0026	0.0033	0.0036	0.0037	0.0038	0.0038	0.0038	0.0038	0.0038	0.0033
B31	3020K	0.0000	0.0012	0.0016	0.0021	0.0028	0.0032	0.0034	0.0035	0.0034	0.0034	0.0033	0.0032	0.0030	0.0024
B32	3130K	0.0000	0.0012	0.0016	0.0022	0.0031	0.0036	0.0039	0.0039	0.0039	0.0038	0.0037	0.0035	0.0034	0.0027
B33	3078K	0.0000	0.0013	0.0016	0.0021	0.0029	0.0034	0.0036	0.0036	0.0036	0.0034	0.0033	0.0032	0.0030	0.0022
B34	3067K	0.0000	0.0012	0.0016	0.0023	0.0029	0.0035	0.0038	0.0038	0.0037	0.0033	0.0032	0.0030	0.0027	0.0018
B35	3086K	0.0000	0.0012	0.0016	0.0021	0.0030	0.0034	0.0036	0.0037	0.0037	0.0032	0.0033	0.0030	0.0028	0.0021
B36	3091K	0.0000	0.0012	0.0015	0.0019	0.0026	0.0032	0.0035	0.0036	0.0035	0.0030	0.0030	0.0028	0.0027	0.0019
B37	3058K	0.0000	0.0011	0.0014	0.0019	0.0029	0.0033	0.0037	0.0038	0.0037	0.0036	0.0036	0.0034	0.0033	0.0025
B38	3144K	0.0000	0.0012	0.0015	0.0018	0.0023	0.0029	0.0032	0.0032	0.0032	0.0031	0.0031	0.0029	0.0029	0.0021
B39	3037K	0.0000	0.0012	0.0016	0.0020	0.0029	0.0034	0.0037	0.0038	0.0037	0.0036	0.0036	0.0035	0.0034	0.0027
B40	3074K	0.0000	0.0013	0.0016	0.0021	0.0029	0.0034	0.0038	0.0038	0.0039	0.0038	0.0037	0.0036	0.0035	0.0028
B51	3018K	0.0000	0.0012	0.0015	0.0021	0.0030	0.0034	0.0037	0.0039	0.0039	0.0038	0.0038	0.0036	0.0036	0.0028
B52	3072K	0.0000	0.0012	0.0014	0.0021	0.0030	0.0034	0.0038	0.0039	0.0039	0.0039	0.0039	0.0038	0.0040	0.0030
B53	3116K	0.0000	0.0012	0.0014	0.0019	0.0026	0.0030	0.0034	0.0036	0.0035	0.0035	0.0036	0.0035	0.0034	0.0028
B54	2993K	0.0000	0.0012	0.0016	0.0021	0.0026	0.0031	0.0034	0.0035	0.0034	0.0033	0.0033	0.0031	0.0029	0.0022
B55	3066K	0.0000	0.0012	0.0014	0.0019	0.0027	0.0032	0.0036	0.0036	0.0037	0.0037	0.0038	0.0037	0.0037	0.0031



**Forward Voltage [V] data for tested units**  
**DATASET 14 (LXH9-PW30): Ts = Tair = 85°C, If = 700mA**  
**Ts ≥ 83°C and Tair ≥ 80°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
B11	3082K	3.246	3.233	3.221	3.213	3.210	3.211	3.218	3.236	3.244	3.249	3.251	3.255	3.263	3.258
B12	3036K	3.259	3.250	3.238	3.230	3.225	3.234	3.244	3.255	3.263	3.266	3.267	3.270	3.281	3.277
B13	2987K	3.324	3.269	3.251	3.241	3.238	3.246	3.258	3.262	3.263	3.266	3.263	3.269	3.277	3.271
B14	2963K	3.226	3.203	3.187	3.177	3.171	3.169	3.178	3.189	3.194	3.199	3.200	3.208	3.215	3.212
B15	3033K	3.115	3.116	3.108	3.108	3.109	3.111	3.120	3.136	3.153	3.169	3.181	3.194	3.204	3.207
B16	3030K	3.292	3.277	3.250	3.234	3.226	3.225	3.232	3.241	3.247	3.252	3.252	3.256	3.264	3.261
B17	2934K	3.269	3.245	3.218	3.204	3.195	3.189	3.192	3.199	3.204	3.207	3.208	3.213	3.221	3.218
B18	3017K	3.157	3.140	3.131	3.129	3.125	3.123	3.131	3.139	3.146	3.151	3.153	3.158	3.167	3.163
B19	3033K	3.139	3.136	3.128	3.126	3.125	3.123	3.124	3.131	3.134	3.139	3.141	3.147	3.156	3.160
B20	2957K	3.263	3.257	3.241	3.231	3.227	3.229	3.238	3.247	3.252	3.256	3.255	3.261	3.269	3.261
B31	3020K	3.303	3.297	3.290	3.290	3.329	3.383	3.394	3.405	3.409	3.412	3.411	3.414	3.424	3.420
B32	3130K	3.391	3.308	3.276	3.277	3.283	3.290	3.295	3.299	3.300	3.302	3.298	3.304	3.310	3.304
B33	3078K	3.120	3.114	3.109	3.121	3.162	3.282	3.299	3.303	3.307	3.309	3.308	3.313	3.320	3.316
B34	3067K	3.212	3.205	3.201	3.213	3.295	3.509	3.531	3.541	3.548	3.551	3.550	3.553	3.561	3.556
B35	3086K	3.344	3.287	3.261	3.260	3.268	3.271	3.276	3.281	3.279	3.278	3.273	3.276	3.281	3.274
B36	3091K	3.080	3.075	3.070	3.082	3.136	3.258	3.269	3.273	3.276	3.279	3.278	3.283	3.291	3.283
B37	3058K	3.161	3.151	3.145	3.147	3.164	3.235	3.264	3.272	3.276	3.279	3.280	3.285	3.293	3.289
B38	3144K	3.101	3.093	3.087	3.099	3.151	3.267	3.278	3.283	3.285	3.287	3.286	3.292	3.299	3.288
B39	3037K	3.153	3.143	3.137	3.139	3.155	3.225	3.273	3.283	3.289	3.291	3.293	3.295	3.307	3.301
B40	3074K	3.127	3.117	3.112	3.114	3.128	3.191	3.255	3.266	3.271	3.274	3.274	3.280	3.290	3.282
B51	3018K	3.236	3.225	3.211	3.203	3.207	3.222	3.235	3.243	3.248	3.249	3.251	3.253	3.260	3.260
B52	3072K	3.160	3.153	3.149	3.150	3.164	3.241	3.330	3.345	3.350	3.350	3.349	3.356	3.365	3.360
B53	3116K	3.202	3.196	3.188	3.189	3.204	3.292	3.394	3.407	3.412	3.413	3.412	3.413	3.423	3.413
B54	2993K	3.289	3.280	3.273	3.270	3.288	3.391	3.539	3.559	3.563	3.570	3.568	3.573	3.582	3.575
B55	3066K	3.180	3.173	3.166	3.169	3.183	3.259	3.325	3.339	3.344	3.344	3.340	3.345	3.353	3.345

**Luminous Flux [lm] data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	3033K	115.701	115.029	114.735	116.574	114.737	113.731	115.246	113.365	113.260	112.833	112.161	111.415	110.420	110.422
A2	2976K	118.320	117.581	117.284	119.585	116.907	115.990	117.764	115.621	115.338	115.270	114.293	113.543	112.595	112.830
A3	3001K	122.012	121.885	121.563	123.910	122.446	121.354	122.858	120.723	120.159	120.211	118.762	118.095	116.978	117.420
A4	3023K	121.506	120.868	120.467	122.551	120.178	118.932	120.588	118.091	117.431	117.473	116.414	115.593	114.606	114.971
A5	3070K	122.954	122.418	122.175	124.854	122.484	121.492	122.839	120.551	120.007	119.759	118.812	117.992	116.975	116.893
A6	2957K	118.779	118.360	118.031	120.240	118.296	117.426	119.273	117.050	116.777	117.351	115.779	115.086	114.176	114.218
A7	2964K	112.992	111.874	111.407	111.882	110.930	110.021	111.371	109.499	108.884	108.565	107.484	106.034	104.913	104.704
A8	2888K	111.692	110.971	111.383	111.427	110.018	109.022	110.405	108.794	108.380	108.260	107.273	105.906	105.035	104.975
A9	2954K	113.493	112.797	112.597	115.128	112.624	111.703	113.136	111.309	110.974	110.678	109.704	108.638	107.823	107.570
A10	2962K	112.933	112.034	111.886	112.442	110.827	110.441	112.247	110.156	109.992	110.191	109.080	108.318	107.439	107.339
A21	3072K	124.216	123.882	123.501	125.824	124.724	123.690	125.325	123.228	122.518	122.393	121.114	120.482	119.316	119.167
A22	2986K	114.542	114.009	114.024	114.932	113.511	112.619	113.996	112.152	111.365	111.280	110.158	109.623	108.398	108.280
A23	2971K	116.888	116.161	116.174	116.320	114.879	113.916	115.497	113.618	112.716	112.800	111.733	111.302	109.941	109.826
A24	2977K	121.467	120.434	120.440	122.131	120.181	119.162	120.561	118.507	117.717	117.756	116.441	116.069	114.732	114.812
A25	3041K	124.245	123.786	123.373	125.800	123.670	122.593	123.927	121.855	121.083	120.776	119.663	119.090	117.920	117.655
A26	2986K	118.550	117.697	117.196	118.524	116.418	115.401	116.912	115.112	114.182	114.174	113.251	112.716	111.024	111.111
A27	3100K	123.758	123.018	122.629	124.695	122.616	121.406	122.792	120.955	120.158	120.267	119.197	118.242	117.409	117.438
A28	2992K	121.166	120.591	120.327	122.682	120.185	119.081	120.386	118.213	117.788	117.653	116.626	116.088	114.870	115.261
A29	3056K	118.897	118.013	117.444	118.313	116.978	115.972	117.594	115.405	114.921	114.576	113.787	113.029	111.254	111.615
A30	2997K	117.917	117.387	117.876	118.747	117.426	116.376	117.944	115.795	115.126	114.614	113.936	113.045	111.786	111.755
A41	3069K	121.271	121.084	121.943	121.576	119.889	118.973	120.164	118.229	117.417	117.305	116.166	115.819	114.554	114.355
A42	3048K	122.846	122.457	122.586	122.906	121.238	120.124	121.251	119.008	118.002	117.797	116.654	116.098	114.657	114.406
A43	3006K	127.464	127.921	128.697	129.757	127.892	126.502	127.660	124.827	123.927	123.515	122.260	121.387	120.010	120.338
A44	3032K	124.637	123.932	123.362	124.036	122.420	121.410	122.647	120.455	119.844	119.725	118.775	118.262	117.030	117.193
A45	3073K	124.502	123.710	123.368	124.072	122.460	121.509	122.622	120.631	119.832	119.833	118.576	117.972	115.975	116.509

**Normalized Luminous Flux data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	3033K	1.0000	0.9942	0.9917	1.0075	0.9917	0.9830	0.9961	0.9798	0.9789	0.9752	0.9694	0.9630	0.9544	0.9544
A2	2976K	1.0000	0.9938	0.9912	1.0107	0.9881	0.9803	0.9953	0.9772	0.9748	0.9742	0.9660	0.9596	0.9516	0.9536
A3	3001K	1.0000	0.9990	0.9963	1.0156	1.0036	0.9946	1.0069	0.9894	0.9848	0.9852	0.9734	0.9679	0.9587	0.9624
A4	3023K	1.0000	0.9948	0.9915	1.0086	0.9891	0.9788	0.9924	0.9719	0.9665	0.9668	0.9581	0.9513	0.9432	0.9462
A5	3070K	1.0000	0.9956	0.9937	1.0155	0.9962	0.9881	0.9991	0.9805	0.9760	0.9740	0.9663	0.9596	0.9514	0.9507
A6	2957K	1.0000	0.9965	0.9937	1.0123	0.9959	0.9886	1.0042	0.9854	0.9831	0.9880	0.9747	0.9689	0.9612	0.9616
A7	2964K	1.0000	0.9901	0.9860	0.9902	0.9818	0.9737	0.9857	0.9691	0.9636	0.9608	0.9513	0.9384	0.9285	0.9267
A8	2888K	1.0000	0.9935	0.9972	0.9976	0.9850	0.9761	0.9885	0.9741	0.9704	0.9693	0.9604	0.9482	0.9404	0.9399
A9	2954K	1.0000	0.9939	0.9921	1.0144	0.9923	0.9842	0.9969	0.9808	0.9778	0.9752	0.9666	0.9572	0.9500	0.9478
A10	2962K	1.0000	0.9920	0.9907	0.9956	0.9814	0.9779	0.9939	0.9754	0.9740	0.9757	0.9659	0.9591	0.9514	0.9505
A21	3072K	1.0000	0.9973	0.9942	1.0129	1.0041	0.9958	1.0089	0.9920	0.9863	0.9853	0.9750	0.9699	0.9605	0.9594
A22	2986K	1.0000	0.9953	0.9955	1.0034	0.9910	0.9832	0.9952	0.9791	0.9723	0.9715	0.9617	0.9571	0.9464	0.9453
A23	2971K	1.0000	0.9938	0.9939	0.9951	0.9828	0.9746	0.9881	0.9720	0.9643	0.9650	0.9559	0.9522	0.9406	0.9396
A24	2977K	1.0000	0.9915	0.9915	1.0055	0.9894	0.9810	0.9925	0.9756	0.9691	0.9694	0.9586	0.9556	0.9446	0.9452
A25	3041K	1.0000	0.9963	0.9930	1.0125	0.9954	0.9867	0.9974	0.9808	0.9745	0.9721	0.9631	0.9585	0.9491	0.9470
A26	2986K	1.0000	0.9928	0.9886	0.9998	0.9820	0.9734	0.9862	0.9710	0.9631	0.9631	0.9553	0.9508	0.9365	0.9372
A27	3100K	1.0000	0.9940	0.9909	1.0076	0.9908	0.9810	0.9922	0.9774	0.9709	0.9718	0.9631	0.9554	0.9487	0.9489
A28	2992K	1.0000	0.9953	0.9931	1.0125	0.9919	0.9828	0.9936	0.9756	0.9721	0.9710	0.9625	0.9581	0.9480	0.9513
A29	3056K	1.0000	0.9926	0.9878	0.9951	0.9839	0.9754	0.9890	0.9706	0.9666	0.9637	0.9570	0.9506	0.9357	0.9388
A30	2997K	1.0000	0.9955	0.9997	1.0070	0.9958	0.9869	1.0002	0.9820	0.9763	0.9720	0.9662	0.9587	0.9480	0.9477
A41	3069K	1.0000	0.9985	1.0055	1.0025	0.9886	0.9811	0.9909	0.9749	0.9682	0.9673	0.9579	0.9550	0.9446	0.9430
A42	3048K	1.0000	0.9968	0.9979	1.0005	0.9869	0.9778	0.9870	0.9688	0.9606	0.9589	0.9496	0.9451	0.9333	0.9313
A43	3006K	1.0000	1.0036	1.0097	1.0180	1.0034	0.9925	1.0015	0.9793	0.9723	0.9690	0.9592	0.9523	0.9415	0.9441
A44	3032K	1.0000	0.9943	0.9898	0.9952	0.9822	0.9741	0.9840	0.9664	0.9615	0.9606	0.9530	0.9489	0.9390	0.9403
A45	3073K	1.0000	0.9936	0.9909	0.9965	0.9836	0.9760	0.9849	0.9689	0.9625	0.9625	0.9524	0.9475	0.9315	0.9358

**TM-21 Extrapolation of Luminous Flux data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	alpha	B	L70
A1	3033K	5.6676e-06	1.0078	64,297
A2	2976K	5.3416e-06	1.0026	67,265
A3	3001K	5.7918e-06	1.0152	64,182
A4	3023K	5.3439e-06	0.9944	65,690
A5	3070K	5.9699e-06	1.0071	60,924
A6	2957K	5.6881e-06	1.0153	65,373
A7	2964K	8.9137e-06	1.0101	41,141
A8	2888K	7.5195e-06	1.0101	48,765
A9	2954K	6.9704e-06	1.0140	53,169
A10	2962K	5.8556e-06	1.0059	61,920
A21	3072K	6.2940e-06	1.0197	59,771
A22	2986K	6.4019e-06	1.0061	56,671
A23	2971K	6.0213e-06	0.9969	58,720
A24	2977K	5.8908e-06	1.0003	60,593
A25	3041K	6.2916e-06	1.0071	57,812
A26	2986K	6.4287e-06	0.9979	55,159
A27	3100K	5.5629e-06	1.0007	64,236
A28	2992K	5.2824e-06	0.9993	67,387
A29	3056K	6.8824e-06	1.0024	52,176
A30	2997K	6.6112e-06	1.0103	55,501
A41	3069K	5.8946e-06	0.9992	60,368
A42	3048K	6.8742e-06	0.9965	51,371
A43	3006K	6.8705e-06	1.0069	52,915
A44	3032K	5.2705e-06	0.9888	65,540
A45	3073K	6.9691e-06	0.9995	51,112
ave	3009K	6.2611e-06	1.0045	57,690

**CIE 1976 u' data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	3033K	0.2487	0.2478	0.2474	0.2468	0.2463	0.2460	0.2458	0.2460	0.2461	0.2464	0.2466	0.2469	0.2471	0.2473
A2	2976K	0.2509	0.2500	0.2495	0.2488	0.2484	0.2482	0.2480	0.2482	0.2485	0.2487	0.2491	0.2493	0.2496	0.2495
A3	3001K	0.2506	0.2496	0.2492	0.2486	0.2480	0.2479	0.2477	0.2480	0.2483	0.2485	0.2489	0.2491	0.2493	0.2492
A4	3023K	0.2495	0.2485	0.2481	0.2475	0.2471	0.2469	0.2468	0.2471	0.2475	0.2477	0.2480	0.2482	0.2485	0.2484
A5	3070K	0.2470	0.2461	0.2456	0.2450	0.2446	0.2444	0.2442	0.2445	0.2448	0.2451	0.2454	0.2456	0.2459	0.2461
A6	2957K	0.2522	0.2512	0.2507	0.2499	0.2495	0.2492	0.2490	0.2492	0.2495	0.2497	0.2500	0.2503	0.2505	0.2505
A7	2964K	0.2518	0.2508	0.2502	0.2495	0.2492	0.2490	0.2488	0.2490	0.2494	0.2496	0.2499	0.2504	0.2507	0.2508
A8	2888K	0.2552	0.2542	0.2537	0.2530	0.2527	0.2526	0.2524	0.2527	0.2530	0.2533	0.2536	0.2542	0.2545	0.2547
A9	2954K	0.2518	0.2507	0.2502	0.2496	0.2493	0.2491	0.2490	0.2492	0.2496	0.2499	0.2502	0.2507	0.2510	0.2511
A10	2962K	0.2516	0.2505	0.2500	0.2493	0.2490	0.2488	0.2486	0.2487	0.2490	0.2492	0.2494	0.2498	0.2501	0.2500
A21	3072K	0.2477	0.2467	0.2463	0.2456	0.2450	0.2448	0.2446	0.2447	0.2450	0.2453	0.2456	0.2459	0.2461	0.2460
A22	2986K	0.2511	0.2501	0.2497	0.2489	0.2485	0.2483	0.2481	0.2483	0.2485	0.2488	0.2491	0.2493	0.2496	0.2496
A23	2971K	0.2519	0.2509	0.2504	0.2497	0.2493	0.2490	0.2488	0.2489	0.2492	0.2494	0.2497	0.2499	0.2502	0.2503
A24	2977K	0.2515	0.2506	0.2500	0.2492	0.2489	0.2487	0.2486	0.2488	0.2492	0.2495	0.2498	0.2499	0.2502	0.2502
A25	3041K	0.2492	0.2481	0.2477	0.2470	0.2465	0.2463	0.2461	0.2463	0.2466	0.2469	0.2472	0.2474	0.2476	0.2477
A26	2986K	0.2514	0.2504	0.2499	0.2492	0.2488	0.2485	0.2483	0.2485	0.2489	0.2491	0.2494	0.2497	0.2497	0.2498
A27	3100K	0.2465	0.2455	0.2451	0.2443	0.2440	0.2437	0.2435	0.2437	0.2440	0.2442	0.2445	0.2447	0.2449	0.2449
A28	2992K	0.2511	0.2501	0.2495	0.2489	0.2485	0.2484	0.2482	0.2485	0.2489	0.2492	0.2495	0.2497	0.2499	0.2499
A29	3056K	0.2485	0.2475	0.2469	0.2462	0.2460	0.2458	0.2457	0.2459	0.2462	0.2465	0.2468	0.2471	0.2472	0.2474
A30	2997K	0.2511	0.2500	0.2494	0.2488	0.2485	0.2485	0.2485	0.2489	0.2493	0.2497	0.2499	0.2502	0.2505	0.2507
A41	3069K	0.2484	0.2474	0.2470	0.2463	0.2460	0.2457	0.2456	0.2458	0.2462	0.2465	0.2468	0.2470	0.2472	0.2473
A42	3048K	0.2495	0.2485	0.2481	0.2475	0.2473	0.2471	0.2470	0.2474	0.2478	0.2482	0.2484	0.2488	0.2491	0.2493
A43	3006K	0.2510	0.2500	0.2495	0.2486	0.2484	0.2482	0.2482	0.2485	0.2489	0.2493	0.2495	0.2498	0.2500	0.2499
A44	3032K	0.2494	0.2485	0.2480	0.2474	0.2471	0.2468	0.2467	0.2468	0.2471	0.2473	0.2475	0.2478	0.2480	0.2480
A45	3073K	0.2481	0.2471	0.2466	0.2460	0.2457	0.2455	0.2454	0.2457	0.2460	0.2463	0.2466	0.2469	0.2471	0.2472

**CIE 1976 v' data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	3033K	0.5235	0.5233	0.5235	0.5228	0.5226	0.5225	0.5225	0.5223	0.5225	0.5225	0.5224	0.5224	0.5225	0.5224
A2	2976K	0.5239	0.5238	0.5239	0.5234	0.5231	0.5230	0.5229	0.5229	0.5230	0.5230	0.5229	0.5230	0.5230	0.5229
A3	3001K	0.5210	0.5208	0.5209	0.5206	0.5203	0.5203	0.5201	0.5201	0.5202	0.5202	0.5201	0.5202	0.5203	0.5201
A4	3023K	0.5217	0.5215	0.5215	0.5214	0.5211	0.5210	0.5210	0.5210	0.5211	0.5211	0.5210	0.5210	0.5211	0.5209
A5	3070K	0.5240	0.5238	0.5239	0.5236	0.5232	0.5232	0.5232	0.5231	0.5232	0.5233	0.5231	0.5231	0.5232	0.5231
A6	2957K	0.5219	0.5218	0.5219	0.5212	0.5211	0.5210	0.5209	0.5209	0.5210	0.5210	0.5209	0.5209	0.5211	0.5209
A7	2964K	0.5223	0.5221	0.5222	0.5213	0.5212	0.5211	0.5211	0.5210	0.5211	0.5212	0.5210	0.5213	0.5213	0.5211
A8	2888K	0.5215	0.5213	0.5216	0.5210	0.5209	0.5209	0.5208	0.5207	0.5208	0.5210	0.5208	0.5210	0.5210	0.5208
A9	2954K	0.5240	0.5238	0.5237	0.5233	0.5232	0.5232	0.5232	0.5231	0.5232	0.5233	0.5231	0.5232	0.5233	0.5231
A10	2962K	0.5237	0.5234	0.5235	0.5229	0.5229	0.5228	0.5227	0.5226	0.5227	0.5227	0.5226	0.5227	0.5228	0.5226
A21	3072K	0.5212	0.5210	0.5208	0.5203	0.5200	0.5200	0.5199	0.5198	0.5199	0.5200	0.5198	0.5199	0.5200	0.5198
A22	2986K	0.5213	0.5211	0.5210	0.5201	0.5199	0.5199	0.5198	0.5197	0.5198	0.5200	0.5198	0.5198	0.5199	0.5198
A23	2971K	0.5210	0.5207	0.5209	0.5203	0.5201	0.5201	0.5200	0.5200	0.5200	0.5202	0.5199	0.5200	0.5201	0.5199
A24	2977K	0.5214	0.5211	0.5210	0.5203	0.5201	0.5201	0.5201	0.5201	0.5201	0.5202	0.5200	0.5201	0.5202	0.5200
A25	3041K	0.5204	0.5201	0.5201	0.5199	0.5197	0.5197	0.5196	0.5196	0.5197	0.5198	0.5196	0.5196	0.5197	0.5195
A26	2986K	0.5205	0.5202	0.5203	0.5198	0.5197	0.5196	0.5196	0.5195	0.5196	0.5197	0.5195	0.5195	0.5196	0.5194
A27	3100K	0.5218	0.5216	0.5216	0.5210	0.5209	0.5209	0.5208	0.5208	0.5208	0.5209	0.5207	0.5208	0.5208	0.5207
A28	2992K	0.5208	0.5204	0.5203	0.5199	0.5199	0.5199	0.5199	0.5198	0.5198	0.5200	0.5198	0.5198	0.5199	0.5197
A29	3056K	0.5208	0.5205	0.5205	0.5198	0.5197	0.5197	0.5196	0.5196	0.5196	0.5198	0.5196	0.5196	0.5198	0.5196
A30	2997K	0.5198	0.5195	0.5195	0.5188	0.5188	0.5187	0.5187	0.5186	0.5187	0.5189	0.5186	0.5186	0.5187	0.5186
A41	3069K	0.5192	0.5188	0.5192	0.5183	0.5180	0.5179	0.5179	0.5179	0.5179	0.5180	0.5179	0.5180	0.5180	0.5179
A42	3048K	0.5180	0.5177	0.5178	0.5173	0.5170	0.5170	0.5170	0.5170	0.5170	0.5171	0.5171	0.5171	0.5171	0.5171
A43	3006K	0.5188	0.5184	0.5185	0.5182	0.5178	0.5178	0.5178	0.5178	0.5178	0.5179	0.5179	0.5179	0.5178	0.5178
A44	3032K	0.5208	0.5204	0.5200	0.5192	0.5190	0.5189	0.5189	0.5189	0.5189	0.5191	0.5189	0.5190	0.5190	0.5189
A45	3073K	0.5199	0.5195	0.5192	0.5184	0.5181	0.5181	0.5181	0.5181	0.5181	0.5182	0.5181	0.5182	0.5182	0.5181

**Delta u'v' data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	3033K	0.0000	0.0009	0.0013	0.0020	0.0026	0.0029	0.0031	0.0030	0.0028	0.0025	0.0024	0.0021	0.0019	0.0018
A2	2976K	0.0000	0.0009	0.0014	0.0022	0.0026	0.0028	0.0031	0.0029	0.0026	0.0024	0.0021	0.0018	0.0016	0.0017
A3	3001K	0.0000	0.0010	0.0014	0.0020	0.0027	0.0028	0.0030	0.0028	0.0024	0.0022	0.0019	0.0017	0.0015	0.0017
A4	3023K	0.0000	0.0010	0.0014	0.0020	0.0025	0.0027	0.0028	0.0025	0.0021	0.0019	0.0017	0.0015	0.0012	0.0014
A5	3070K	0.0000	0.0009	0.0014	0.0020	0.0025	0.0027	0.0029	0.0027	0.0023	0.0020	0.0018	0.0017	0.0014	0.0013
A6	2957K	0.0000	0.0010	0.0015	0.0024	0.0028	0.0031	0.0034	0.0032	0.0028	0.0027	0.0024	0.0021	0.0019	0.0020
A7	2964K	0.0000	0.0010	0.0016	0.0025	0.0028	0.0030	0.0032	0.0031	0.0027	0.0025	0.0023	0.0017	0.0015	0.0016
A8	2888K	0.0000	0.0010	0.0015	0.0023	0.0026	0.0027	0.0029	0.0026	0.0023	0.0020	0.0017	0.0011	0.0009	0.0009
A9	2954K	0.0000	0.0011	0.0016	0.0023	0.0026	0.0028	0.0029	0.0028	0.0023	0.0020	0.0018	0.0014	0.0011	0.0011
A10	2962K	0.0000	0.0011	0.0016	0.0024	0.0027	0.0029	0.0032	0.0031	0.0028	0.0026	0.0025	0.0021	0.0017	0.0019
A21	3072K	0.0000	0.0010	0.0015	0.0023	0.0030	0.0031	0.0034	0.0033	0.0030	0.0027	0.0025	0.0022	0.0020	0.0022
A22	2986K	0.0000	0.0010	0.0014	0.0025	0.0030	0.0031	0.0034	0.0032	0.0030	0.0026	0.0025	0.0023	0.0021	0.0021
A23	2971K	0.0000	0.0010	0.0015	0.0023	0.0028	0.0030	0.0033	0.0032	0.0029	0.0026	0.0025	0.0022	0.0019	0.0019
A24	2977K	0.0000	0.0009	0.0016	0.0025	0.0029	0.0031	0.0032	0.0030	0.0026	0.0023	0.0022	0.0021	0.0018	0.0019
A25	3041K	0.0000	0.0011	0.0015	0.0023	0.0028	0.0030	0.0032	0.0030	0.0027	0.0024	0.0022	0.0020	0.0017	0.0017
A26	2986K	0.0000	0.0010	0.0015	0.0023	0.0027	0.0030	0.0032	0.0031	0.0027	0.0024	0.0022	0.0020	0.0019	0.0019
A27	3100K	0.0000	0.0010	0.0014	0.0023	0.0027	0.0029	0.0032	0.0030	0.0027	0.0025	0.0023	0.0021	0.0019	0.0019
A28	2992K	0.0000	0.0011	0.0017	0.0024	0.0028	0.0028	0.0030	0.0028	0.0024	0.0021	0.0019	0.0017	0.0015	0.0016
A29	3056K	0.0000	0.0010	0.0016	0.0025	0.0027	0.0029	0.0030	0.0029	0.0026	0.0022	0.0021	0.0018	0.0016	0.0016
A30	2997K	0.0000	0.0011	0.0017	0.0025	0.0028	0.0028	0.0028	0.0025	0.0021	0.0017	0.0017	0.0015	0.0013	0.0013
A41	3069K	0.0000	0.0011	0.0014	0.0023	0.0027	0.0030	0.0031	0.0029	0.0026	0.0022	0.0021	0.0018	0.0017	0.0017
A42	3048K	0.0000	0.0010	0.0014	0.0021	0.0024	0.0026	0.0027	0.0023	0.0020	0.0016	0.0014	0.0011	0.0010	0.0009
A43	3006K	0.0000	0.0011	0.0015	0.0025	0.0028	0.0030	0.0030	0.0027	0.0023	0.0019	0.0017	0.0015	0.0014	0.0015
A44	3032K	0.0000	0.0010	0.0016	0.0026	0.0029	0.0032	0.0033	0.0032	0.0030	0.0027	0.0027	0.0024	0.0023	0.0024
A45	3073K	0.0000	0.0011	0.0017	0.0026	0.0030	0.0032	0.0032	0.0030	0.0028	0.0025	0.0023	0.0021	0.0020	0.0020

**Forward Voltage [V] data for tested units**  
**DATASET 13 (LXH9-PW30): Ts = Tair = 105°C, If = 700mA**  
**Ts ≥ 103°C and Tair ≥ 100°C in compliance with LM-80-08**

	CCT (t=0)	0hrs	24hrs	168hrs	500hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs	10000hrs
A1	3033K	3.150	3.146	3.148	3.225	3.346	3.352	3.354	3.354	3.358	3.356	3.344	3.336	3.341	3.313
A2	2976K	3.181	3.173	3.174	3.293	3.398	3.408	3.410	3.413	3.420	3.416	3.401	3.393	3.390	3.359
A3	3001K	3.264	3.261	3.261	3.392	3.598	3.614	3.610	3.602	3.601	3.587	3.563	3.547	3.551	3.513
A4	3023K	3.182	3.178	3.180	3.305	3.433	3.444	3.448	3.447	3.450	3.442	3.424	3.409	3.407	3.371
A5	3070K	3.190	3.185	3.189	3.350	3.475	3.496	3.505	3.511	3.517	3.511	3.491	3.475	3.470	3.430
A6	2957K	3.206	3.202	3.205	3.332	3.467	3.480	3.480	3.478	3.476	3.470	3.451	3.438	3.439	3.403
A7	2964K	3.306	3.282	3.262	3.305	3.332	3.345	3.345	3.339	3.338	3.333	3.319	3.310	3.311	3.283
A8	2888K	3.120	3.113	3.129	3.336	3.360	3.365	3.357	3.351	3.344	3.334	3.319	3.311	3.312	3.282
A9	2954K	3.105	3.099	3.103	3.253	3.365	3.384	3.387	3.388	3.390	3.390	3.377	3.370	3.371	3.337
A10	2962K	3.269	3.263	3.264	3.323	3.358	3.363	3.363	3.361	3.364	3.361	3.348	3.341	3.345	3.319
A21	3072K	3.242	3.238	3.240	3.317	3.544	3.561	3.567	3.568	3.573	3.565	3.542	3.525	3.525	3.485
A22	2986K	3.175	3.168	3.181	3.283	3.311	3.323	3.322	3.321	3.319	3.313	3.299	3.287	3.291	3.267
A23	2971K	3.153	3.147	3.165	3.340	3.361	3.366	3.368	3.364	3.366	3.361	3.348	3.342	3.342	3.312
A24	2977K	3.152	3.143	3.154	3.320	3.357	3.362	3.360	3.351	3.352	3.348	3.334	3.327	3.328	3.301
A25	3041K	3.224	3.219	3.223	3.375	3.504	3.516	3.515	3.509	3.508	3.496	3.476	3.462	3.464	3.429
A26	2986K	3.182	3.177	3.187	3.312	3.363	3.374	3.374	3.374	3.378	3.377	3.365	3.357	3.359	3.331
A27	3100K	3.176	3.170	3.177	3.394	3.451	3.455	3.448	3.436	3.427	3.414	3.396	3.384	3.385	3.353
A28	2992K	3.132	3.128	3.133	3.290	3.389	3.403	3.406	3.404	3.406	3.401	3.387	3.377	3.377	3.344
A29	3056K	3.271	3.260	3.257	3.316	3.338	3.349	3.347	3.347	3.349	3.346	3.339	3.332	3.335	3.308
A30	2997K	3.152	3.147	3.163	3.394	3.410	3.415	3.405	3.403	3.402	3.398	3.383	3.375	3.376	3.343
A41	3069K	3.095	3.089	3.110	3.343	3.363	3.377	3.387	3.389	3.390	3.390	3.379	3.367	3.365	3.323
A42	3048K	3.268	3.237	3.253	3.290	3.298	3.299	3.299	3.299	3.298	3.297	3.289	3.285	3.286	3.265
A43	3006K	3.223	3.217	3.242	3.664	3.700	3.719	3.717	3.708	3.701	3.688	3.671	3.661	3.662	3.616
A44	3032K	3.255	3.226	3.223	3.232	3.240	3.242	3.242	3.244	3.245	3.246	3.238	3.237	3.242	3.224
A45	3073K	3.331	3.289	3.292	3.307	3.313	3.316	3.316	3.316	3.316	3.312	3.300	3.298	3.299	3.278

## Company Information

Philips Lumileds is a leading provider of power LEDs for everyday lighting applications. The company's records for light output, efficacy and thermal management are direct results of the ongoing commitment to advancing solid-state lighting technology and enabling lighting solutions that are more environmentally friendly, help reduce CO2 emissions and reduce the need for power plant expansion. Philips Lumileds LUXEON LEDs are enabling never before possible applications in outdoor lighting, shop lighting, home lighting, digital imaging, display and automotive lighting.

Philips Lumileds is a fully integrated supplier, producing core LED material in all three base colors, (red, green, blue) and white. Philips Lumileds has R & D centers in San Jose, California and in the Netherlands, and production capabilities in San Jose, Singapore and Penang, Malaysia. Founded in 1999, Philips Lumileds is the high flux LED technology leader and is dedicated to bridging the gap between solid-state technology and the lighting world. More information about the company's LUXEON LED products and solid-state lighting technologies can be found at [www.philipslumileds.com](http://www.philipslumileds.com).