Lumileds

IESNA LM-80 Test Report

1. Description of LED light sources tested

LUXEON 2835C 3V: L128-3080CA3500001 (nominal CCT 3000K).

2. Package Pictures

Figure 1. Picture of the LUXEON 2835 series.

3a. Projected L_{70} extrapolations per IESNA TM-21-11

	If = 60mA	If = 120mA	If = 180mA	If = 240mA
Ts = 105°C	102,765	57,602	-	-
Ts = 85°C	395,797	205,059	79,109	71,978
Ts = 55°C	1,059,343	848,837	250,731	251,489

3b. Reported L_{70} extrapolations per IESNA TM-21-11

	If = 60mA	If = 120mA	If = 180mA	If = 240mA
Ts = 105°C	> 36,000	> 36,000	-	-
Ts = 85°C	> 36,000	> 36,000	> 36,000	> 36,000
Ts = 55°C	> 36,000	> 36,000	> 36,000	> 36,000

4. Applicable LUXEON® Series part number(s)

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

Product Family	Part Number	Nominal CCT
LUXEON 2835C 3V	L128-2780CA3500001	2700K
LUXEON 2835C 3V	L128-2780CA35000T1	2700K
LUXEON 2835C 3V	L128-3080CA35000T1	3000K
LUXEON 2835C 3V	L128-3080CA3500001	3000K
LUXEON 2835C 3V	L128-3580CA35000T1	3500K
LUXEON 2835C 3V	L128-3580CA3500001	3500K
LUXEON 2835C 3V	L128-4080CA35000T1	4000K
LUXEON 2835C 3V	L128-4080CA3500001	4000K
LUXEON 2835C 3V	L128-5080CA3500001	5000K
LUXEON 2835C 3V	L128-5080CA35000T1	5000K
LUXEON 2835C 3V	L128-5780CA3500001	5700K
LUXEON 2835C 3V	L128-5780CA35000T1	5700K
LUXEON 2835C 3V	L128-6580CA35000T1	6500K
LUXEON 2835C 3V	L128-6580CA3500001	6500K

5. Number of LED light sources tested

25 units per test.

6. Dates Tests Started

2016/01/26.

7. Date Report First Issued

2016/12/14.

8. Mechanical Drawing

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

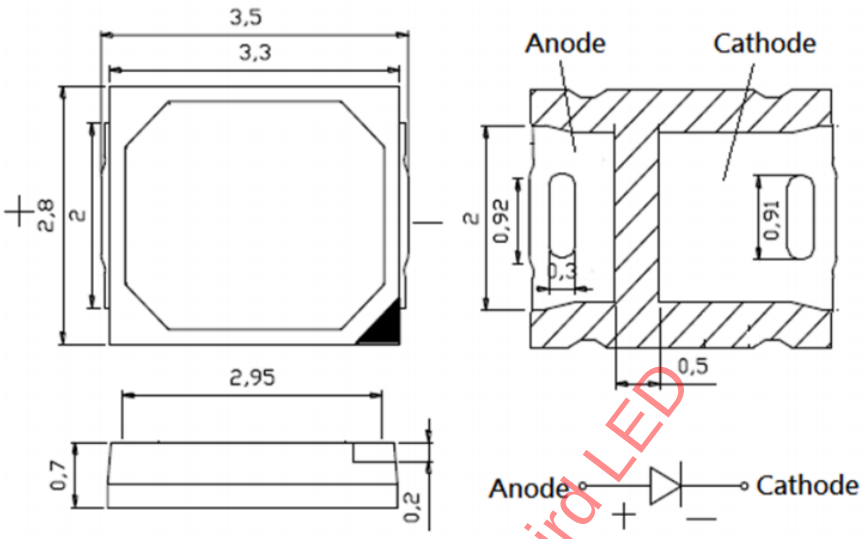

Figure 2: Mechanical Drawing for LUXEON 2835. All dimensions are in millimeters.

9. T_s Measurement Point

The point below in the right side of the LUXEON 2835 corresponds to the recommended temperature measurement point T_s, see Figure 3.

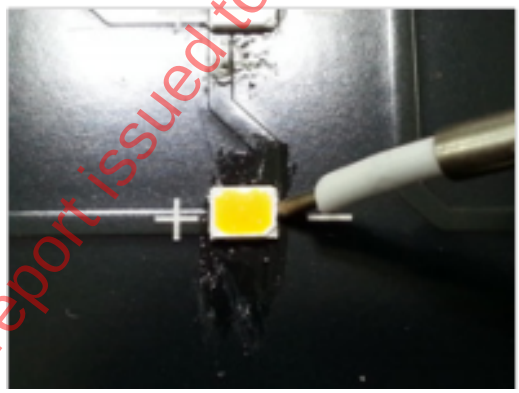

Figure 3: Preferred T_s measurement point for LUXEON 2835.

For further information on measuring the in-situ T_s, please see the appropriate application Lumileds Application Brief which is available online at www.lumileds.com.

10. Description of auxiliary equipment

LUXEON LED devices are soldered to reliability stress boards..

Reliability stress boards are mounted in a chamber with minimal ambient airflow. The chamber temperature is controlled based on the temperature of a control Ts point, which is located on the stress board.

The reliability stress board is periodically removed from the thermal chamber, allowed to cool to room temperature, and then tested. 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 typical relative humidity within the chamber is < 65%.

13. T_s and ambient temperatures (ambient temperature measured 5mm above reliability stress board)

In all cases, both T_s and T_{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 hour and at subsequent 1,000 hours intervals.

19. Measurement uncertainty

Long-term measurement uncertainty is based on reproducibility tests done over a period of one year, calculated to k = 1.97 coverage (i.e. 95% coverage).

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 (Φ_v) ± 2%

20. Chromaticity shift reported over the measurement time

See tables.

21. Sampling Method/Sample size

IESNA LM-80-08 requires LED samples to be operated at a minimum of 1 case temperature, T_s. The drive current may be different for the different case temperatures. LED sample size is indicated in Section 5 of this report.

22. ISO 17025-2005 Accreditation

Certificate for IESNA LM-80-08 with A2LA Certificate Number: 3129.01 .

Notes

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

The TM-21 extrapolations are based on IES TM-21-11 "Projecting Long Term Lumen Maintenance of LED Light Sources. The TM-21 lumen maintenance model is based on the flux data normalized to 1 at 0 hours and the use of a exponential model for flux(time):

Flux(time) = B exp[-alpha*time], where normally B ≅ 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.

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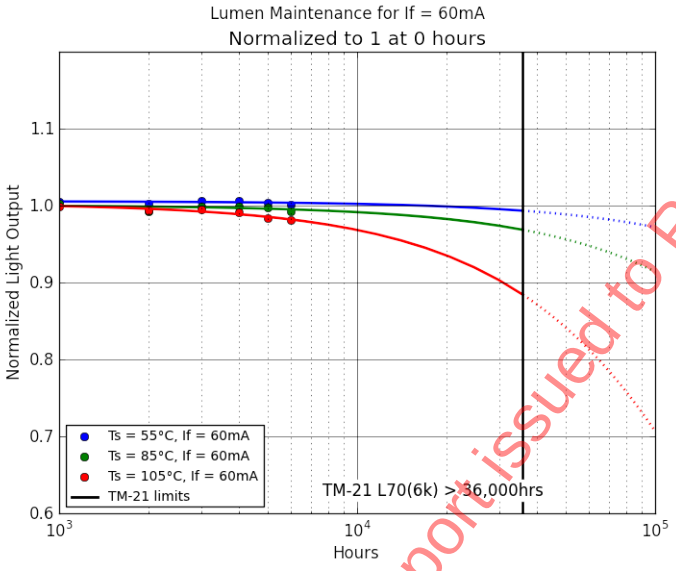
Normalized Flux Statistics for I_f = 60mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	alpha	B	L70
	median =	1.000	1.000	0.995	0.996	0.991	0.982	0.982			
Ts=Tair=105°C	average =	1.000	0.998	0.994	0.995	0.991	0.983	0.982	3.4980e-06	1.0028	102,765
	st dev =	0.000	0.010	0.006	0.007	0.007	0.007	0.007	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	0.960	0.974	0.974	0.971	0.964	0.962			
	max =	1.000	1.010	1.005	1.009	1.005	0.998	0.996			
	median =	1.000	1.003	0.995	1.000	1.001	0.998	0.993			
Ts=Tair=85°C	average =	1.000	1.003	0.993	0.998	0.999	0.998	0.993	9.0237e-07	1.0005	395,797
	st dev =	0.000	0.003	0.008	0.006	0.006	0.005	0.005	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	0.997	0.965	0.977	0.981	0.982	0.979			
	max =	1.000	1.007	1.003	1.007	1.007	1.006	1.000			
	median =	1.000	1.006	1.002	1.006	1.007	1.004	1.001			
Ts=Tair=55°C	average =	1.000	1.005	1.002	1.007	1.007	1.004	1.001	3.4201e-07	1.0056	1,059,343
	st dev =	0.000	0.003	0.003	0.003	0.004	0.003	0.003	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	1.000	0.998	1.001	1.002	1.000	0.996			
	max =	1.000	1.011	1.008	1.014	1.013	1.011	1.009			

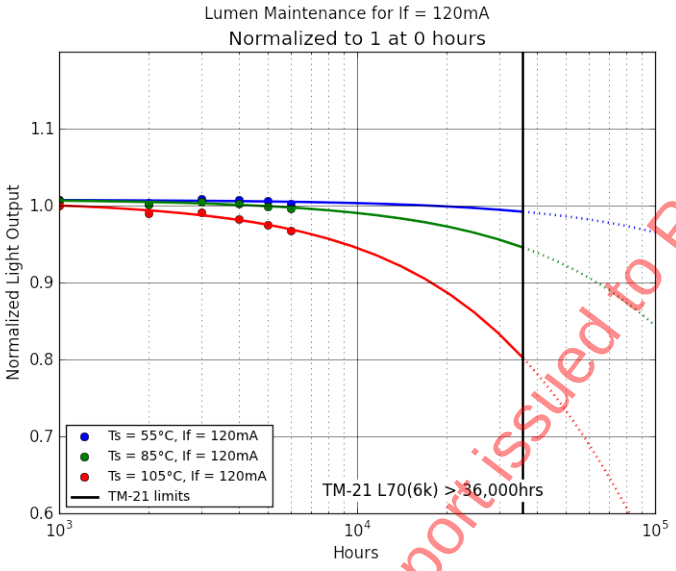


Delta u'v' for I_f = 60mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
	median =	0.0000	0.0009	0.0010	0.0011	0.0012	0.0013	0.0016
Ts=Tair=105°C	average =	0.0000	0.0009	0.0010	0.0012	0.0012	0.0013	0.0016
	st dev =	0.0000	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002
	min =	0.0000	0.0008	0.0008	0.0010	0.0011	0.0010	0.0013
	max =	0.0000	0.0019	0.0016	0.0014	0.0014	0.0015	0.0020
	median =	0.0000	0.0007	0.0010	0.0010	0.0010	0.0012	0.0014
Ts=Tair=85°C	average =	0.0000	0.0007	0.0010	0.0011	0.0011	0.0012	0.0014
	st dev =	0.0000	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001
	min =	0.0000	0.0004	0.0005	0.0008	0.0009	0.0010	0.0013
	max =	0.0000	0.0009	0.0015	0.0014	0.0014	0.0013	0.0016
	median =	0.0000	0.0005	0.0006	0.0007	0.0008	0.0009	0.0012
Ts=Tair=55°C	average =	0.0000	0.0005	0.0006	0.0007	0.0007	0.0009	0.0012
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	min =	0.0000	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010
	max =	0.0000	0.0007	0.0007	0.0009	0.0009	0.0011	0.0014

Normalized Flux Statistics for I_f = 120mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	alpha	B	L70
	median =	1.000	1.001	0.990	0.992	0.983	0.975	0.967			
Ts=Tair=105°C	average =	1.000	1.000	0.990	0.991	0.983	0.976	0.967	6.3031e-06	1.0064	57,602
	st dev =	0.000	0.004	0.004	0.005	0.005	0.006	0.007	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	0.994	0.980	0.980	0.971	0.966	0.958			
	max =	1.000	1.006	0.998	1.001	0.993	0.987	0.983			
	median =	1.000	1.009	1.002	1.006	1.003	1.000	0.998			
Ts=Tair=85°C	average =	1.000	1.007	1.001	1.005	1.003	0.999	0.996	1.7790e-06	1.0082	205,059
	st dev =	0.000	0.005	0.005	0.005	0.005	0.007	0.006	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	0.998	0.991	0.993	0.990	0.987	0.986			
	max =	1.000	1.014	1.009	1.013	1.011	1.008	1.006			
	median =	1.000	1.007	1.004	1.009	1.008	1.008	1.003			
Ts=Tair=55°C	average =	1.000	1.007	1.004	1.008	1.007	1.007	1.003	4.2897e-07	1.0075	848,837
	st dev =	0.000	0.002	0.002	0.002	0.003	0.004	0.003	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	1.003	0.998	1.002	1.000	1.000	0.996			
	max =	1.000	1.013	1.009	1.012	1.014	1.011	1.008			

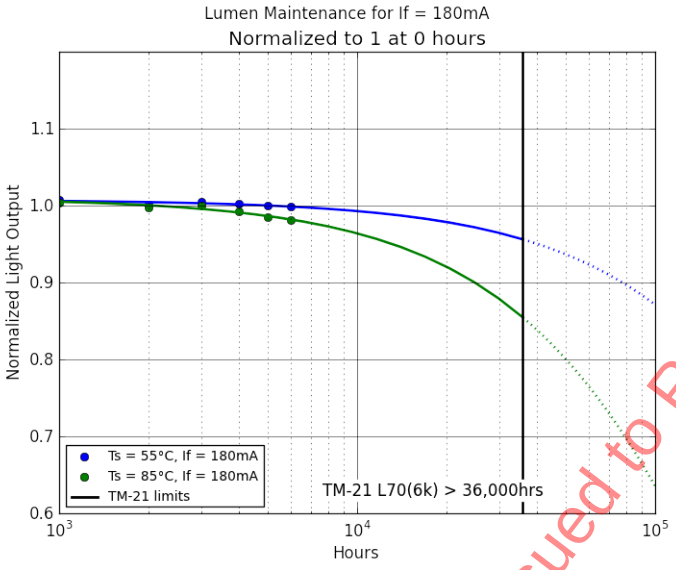


Delta u'v' for I_f = 120mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
	median =	0.0000	0.0009	0.0012	0.0014	0.0016	0.0018	0.0020
Ts=Tair=105°C	average =	0.0000	0.0010	0.0012	0.0014	0.0016	0.0018	0.0020
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	min =	0.0000	0.0008	0.0008	0.0013	0.0014	0.0016	0.0017
	max =	0.0000	0.0012	0.0014	0.0016	0.0018	0.0020	0.0022
	median =	0.0000	0.0009	0.0009	0.0011	0.0014	0.0015	0.0018
Ts=Tair=85°C	average =	0.0000	0.0008	0.0010	0.0012	0.0014	0.0015	0.0018
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	min =	0.0000	0.0006	0.0009	0.0011	0.0012	0.0013	0.0016
	max =	0.0000	0.0011	0.0012	0.0013	0.0015	0.0017	0.0020
	median =	0.0000	0.0006	0.0007	0.0008	0.0009	0.0011	0.0014
Ts=Tair=55°C	average =	0.0000	0.0006	0.0007	0.0009	0.0009	0.0011	0.0014
	st dev =	0.0000	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	min =	0.0000	0.0005	0.0006	0.0008	0.0008	0.0010	0.0011
	max =	0.0000	0.0008	0.0009	0.0011	0.0011	0.0012	0.0016

Normalized Flux Statistics for I_f = 180mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	alpha	B	L70
	median =	1.000	1.004	0.999	0.999	0.992	0.984	0.977			
Ts=Tair=85°C	average =	1.000	1.004	0.998	1.000	0.993	0.985	0.981	4.6293e-06	1.0096	79,109
	st dev =	0.000	0.004	0.004	0.005	0.007	0.008	0.009	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	0.995	0.990	0.989	0.982	0.975	0.965			
	max =	1.000	1.012	1.006	1.008	1.004	0.997	0.994			
	median =	1.000	1.007	1.001	1.006	1.002	1.000	0.998			
Ts=Tair=55°C	average =	1.000	1.007	1.001	1.005	1.002	1.000	0.998	1.4519e-06	1.0074	250,731
	st dev =	0.000	0.003	0.004	0.005	0.006	0.006	0.005	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	1.001	0.994	0.996	0.993	0.989	0.987			
	max =	1.000	1.013	1.009	1.014	1.013	1.013	1.011			

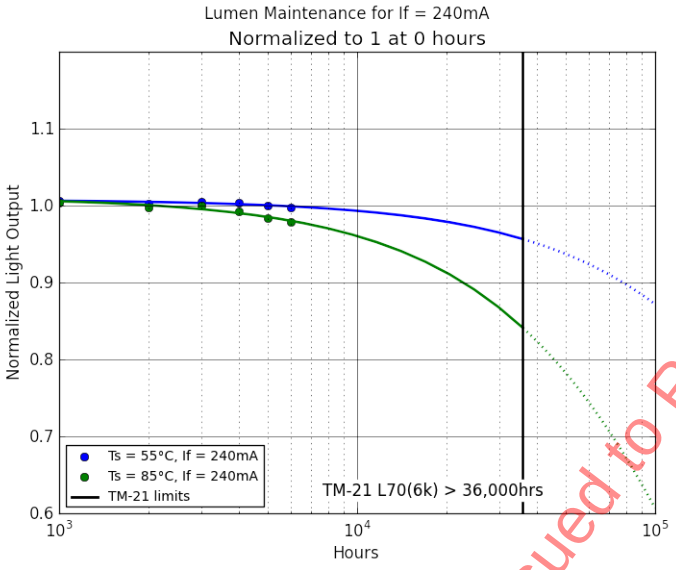


Delta u'v' for I_f = 180mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
	median =	0.0000	0.0011	0.0013	0.0016	0.0018	0.0020	0.0024
Ts=Tair=85°C	average =	0.0000	0.0011	0.0014	0.0017	0.0020	0.0022	0.0026
	st dev =	0.0000	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004
	min =	0.0000	0.0009	0.0011	0.0014	0.0015	0.0017	0.0020
	max =	0.0000	0.0015	0.0018	0.0022	0.0025	0.0029	0.0036
	median =	0.0000	0.0008	0.0009	0.0011	0.0012	0.0014	0.0016
Ts=Tair=55°C	average =	0.0000	0.0008	0.0009	0.0011	0.0012	0.0015	0.0018
	st dev =	0.0000	0.0001	0.0002	0.0001	0.0002	0.0002	0.0003
	min =	0.0000	0.0006	0.0007	0.0009	0.0009	0.0011	0.0014
	max =	0.0000	0.0009	0.0015	0.0014	0.0016	0.0020	0.0025

Normalized Flux Statistics for I_f = 240mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	alpha	B	L70
	median =	1.000	1.005	0.998	1.000	0.993	0.985	0.979			
Ts=Tair=85°C	average =	1.000	1.004	0.998	1.000	0.993	0.984	0.979	5.1035e-06	1.0107	71,978
	st dev =	0.000	0.004	0.004	0.005	0.006	0.007	0.008	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	0.995	0.988	0.988	0.981	0.974	0.967			
	max =	1.000	1.012	1.006	1.010	1.003	0.996	0.992			
	median =	1.000	1.005	1.002	1.005	1.003	0.999	0.997			
Ts=Tair=55°C	average =	1.000	1.006	1.003	1.005	1.004	1.000	0.998	1.4488e-06	1.0077	251,489
	st dev =	0.000	0.003	0.004	0.004	0.004	0.005	0.004	TM-21 L70(6k) > 36,000hrs		
	min =	1.000	1.002	0.996	0.998	0.997	0.991	0.991			
	max =	1.000	1.013	1.011	1.014	1.013	1.010	1.009			



Delta u'v' for I_f = 240mA

		0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
	median =	0.0000	0.0011	0.0013	0.0016	0.0018	0.0020	0.0023
Ts=Tair=85°C	average =	0.0000	0.0011	0.0014	0.0017	0.0019	0.0022	0.0025
	st dev =	0.0000	0.0001	0.0002	0.0002	0.0003	0.0004	0.0004
	min =	0.0000	0.0008	0.0011	0.0014	0.0016	0.0017	0.0021
	max =	0.0000	0.0013	0.0017	0.0022	0.0025	0.0030	0.0033
	median =	0.0000	0.0007	0.0008	0.0011	0.0011	0.0013	0.0016
Ts=Tair=55°C	average =	0.0000	0.0008	0.0009	0.0011	0.0012	0.0014	0.0017
	st dev =	0.0000	0.0001	0.0001	0.0002	0.0002	0.0002	0.0003
	min =	0.0000	0.0006	0.0007	0.0008	0.0010	0.0012	0.0014
	max =	0.0000	0.0011	0.0013	0.0015	0.0018	0.0022	0.0027

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 55°C$, $I_f = 60mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3080K	21.954	22.119	22.031	22.174	22.149	22.125	22.044
2	3103K	21.881	22.057	21.989	22.097	22.080	22.020	21.938
3	3063K	21.793	21.996	21.931	22.038	22.040	21.978	21.815
4	3054K	21.854	22.065	21.964	22.101	22.103	22.084	22.003
5	3086K	21.835	21.968	21.917	22.045	22.061	21.983	21.898
6	3097K	22.032	22.201	22.122	22.256	22.276	22.131	22.080
7	3073K	21.965	22.068	21.975	22.065	22.042	22.003	21.988
8	3072K	21.789	22.018	21.961	22.087	22.077	22.027	21.989
9	3111K	22.025	22.151	22.071	22.142	22.144	22.084	22.045
10	3068K	22.048	22.098	22.067	22.182	22.216	22.163	22.114
11	3047K	22.020	22.152	22.136	22.224	22.247	22.171	22.110
12	3075K	22.246	22.316	22.285	22.366	22.400	22.332	22.278
13	3091K	22.108	22.235	22.221	22.323	22.369	22.276	22.193
14	3061K	22.116	22.119	22.100	22.142	22.166	22.109	22.020
15	3071K	22.065	22.091	22.047	22.168	22.195	22.129	22.090
16	3074K	22.223	22.294	22.203	22.306	22.331	22.238	22.191
17	3121K	22.288	22.367	22.286	22.358	22.362	22.277	22.226
18	3046K	22.227	22.358	22.277	22.383	22.403	22.324	22.286
19	3106K	22.069	22.151	22.074	22.181	22.143	22.121	22.096
20	3066K	22.257	22.315	22.238	22.320	22.317	22.304	22.191
21	3068K	22.067	22.106	22.015	22.138	22.107	22.112	22.058
22	3077K	21.676	21.834	21.735	21.858	21.818	21.824	21.758
23	3092K	22.038	22.105	22.054	22.136	22.112	22.041	21.969
24	3068K	22.309	22.416	22.337	22.448	22.421	22.388	22.310
25	3077K	21.996	22.130	21.996	22.081	22.030	22.032	21.967

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 55°C$, $I_f = 60mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3080K	1.000	1.008	1.004	1.010	1.009	1.008	1.004
2	3103K	1.000	1.008	1.005	1.010	1.009	1.006	1.003
3	3063K	1.000	1.009	1.006	1.011	1.011	1.008	1.001
4	3054K	1.000	1.010	1.005	1.011	1.011	1.011	1.007
5	3086K	1.000	1.006	1.004	1.010	1.010	1.007	1.003
6	3097K	1.000	1.008	1.004	1.010	1.011	1.005	1.002
7	3073K	1.000	1.005	1.000	1.005	1.004	1.002	1.001
8	3072K	1.000	1.011	1.008	1.014	1.013	1.011	1.009
9	3111K	1.000	1.006	1.002	1.005	1.005	1.003	1.001
10	3068K	1.000	1.002	1.001	1.006	1.008	1.005	1.003
11	3047K	1.000	1.006	1.005	1.009	1.010	1.007	1.004
12	3075K	1.000	1.003	1.002	1.005	1.007	1.004	1.001
13	3091K	1.000	1.006	1.005	1.010	1.012	1.008	1.004
14	3061K	1.000	1.000	0.999	1.001	1.002	1.000	0.996
15	3071K	1.000	1.001	0.999	1.005	1.006	1.003	1.001
16	3074K	1.000	1.003	0.999	1.004	1.005	1.001	0.999
17	3121K	1.000	1.004	1.000	1.003	1.003	1.000	0.997
18	3046K	1.000	1.006	1.002	1.007	1.008	1.004	1.003
19	3106K	1.000	1.004	1.000	1.005	1.003	1.002	1.001
20	3066K	1.000	1.003	0.999	1.003	1.003	1.002	0.997
21	3068K	1.000	1.002	0.998	1.003	1.002	1.002	1.000
22	3077K	1.000	1.007	1.003	1.008	1.007	1.007	1.004
23	3092K	1.000	1.003	1.001	1.004	1.003	1.000	0.997
24	3068K	1.000	1.005	1.001	1.006	1.005	1.004	1.000
25	3077K	1.000	1.006	1.000	1.004	1.002	1.002	0.999

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 55°C, I_f = 60mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3080K	0.2477	0.2472	0.2473	0.2473	0.2474	0.2473	0.2475
2	3103K	0.2472	0.2468	0.2467	0.2468	0.2469	0.2468	0.2469
3	3063K	0.2488	0.2484	0.2484	0.2483	0.2484	0.2485	0.2485
4	3054K	0.2487	0.2481	0.2482	0.2480	0.2482	0.2484	0.2483
5	3086K	0.2481	0.2474	0.2475	0.2474	0.2475	0.2476	0.2477
6	3097K	0.2471	0.2466	0.2466	0.2465	0.2466	0.2466	0.2466
7	3073K	0.2481	0.2475	0.2476	0.2474	0.2475	0.2475	0.2478
8	3072K	0.2480	0.2478	0.2479	0.2478	0.2480	0.2481	0.2481
9	3111K	0.2467	0.2461	0.2461	0.2459	0.2460	0.2460	0.2459
10	3068K	0.2483	0.2478	0.2479	0.2478	0.2479	0.2480	0.2482
11	3047K	0.2489	0.2485	0.2485	0.2484	0.2486	0.2485	0.2487
12	3075K	0.2481	0.2475	0.2476	0.2475	0.2477	0.2476	0.2477
13	3091K	0.2475	0.2471	0.2472	0.2471	0.2472	0.2473	0.2475
14	3061K	0.2486	0.2479	0.2480	0.2477	0.2479	0.2480	0.2480
15	3071K	0.2483	0.2479	0.2479	0.2479	0.2480	0.2479	0.2482
16	3074K	0.2483	0.2478	0.2478	0.2478	0.2479	0.2478	0.2480
17	3121K	0.2466	0.2461	0.2460	0.2459	0.2461	0.2460	0.2461
18	3046K	0.2488	0.2484	0.2485	0.2484	0.2486	0.2485	0.2487
19	3106K	0.2470	0.2465	0.2465	0.2464	0.2466	0.2464	0.2468
20	3066K	0.2482	0.2476	0.2476	0.2476	0.2477	0.2475	0.2477
21	3068K	0.2485	0.2480	0.2480	0.2479	0.2482	0.2480	0.2483
22	3077K	0.2480	0.2476	0.2476	0.2477	0.2478	0.2477	0.2479
23	3092K	0.2475	0.2472	0.2470	0.2470	0.2472	0.2470	0.2473
24	3068K	0.2478	0.2472	0.2473	0.2473	0.2475	0.2474	0.2475
25	3077K	0.2479	0.2474	0.2474	0.2473	0.2474	0.2474	0.2474

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 55°C, I_f = 60mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3080K	0.5203	0.5206	0.5207	0.5208	0.5209	0.5212	0.5216
2	3103K	0.5188	0.5190	0.5192	0.5192	0.5195	0.5196	0.5200
3	3063K	0.5184	0.5188	0.5190	0.5191	0.5192	0.5194	0.5198
4	3054K	0.5200	0.5202	0.5203	0.5203	0.5205	0.5207	0.5211
5	3086K	0.5179	0.5179	0.5182	0.5183	0.5184	0.5186	0.5189
6	3097K	0.5201	0.5203	0.5204	0.5204	0.5207	0.5208	0.5211
7	3073K	0.5196	0.5198	0.5199	0.5200	0.5201	0.5203	0.5208
8	3072K	0.5205	0.5208	0.5209	0.5210	0.5212	0.5214	0.5217
9	3111K	0.5198	0.5200	0.5201	0.5202	0.5204	0.5206	0.5207
10	3068K	0.5198	0.5199	0.5201	0.5203	0.5204	0.5206	0.5211
11	3047K	0.5207	0.5210	0.5211	0.5213	0.5214	0.5216	0.5220
12	3075K	0.5195	0.5197	0.5199	0.5200	0.5201	0.5203	0.5206
13	3091K	0.5192	0.5194	0.5195	0.5197	0.5199	0.5200	0.5204
14	3061K	0.5197	0.5198	0.5199	0.5200	0.5202	0.5203	0.5207
15	3071K	0.5190	0.5191	0.5193	0.5194	0.5195	0.5198	0.5201
16	3074K	0.5189	0.5191	0.5192	0.5193	0.5195	0.5197	0.5201
17	3121K	0.5183	0.5185	0.5187	0.5187	0.5189	0.5191	0.5194
18	3046K	0.5210	0.5211	0.5213	0.5213	0.5216	0.5217	0.5220
19	3106K	0.5192	0.5195	0.5196	0.5196	0.5197	0.5201	0.5205
20	3066K	0.5203	0.5205	0.5206	0.5207	0.5209	0.5210	0.5213
21	3068K	0.5189	0.5191	0.5192	0.5192	0.5195	0.5198	0.5200
22	3077K	0.5194	0.5197	0.5198	0.5199	0.5202	0.5202	0.5205
23	3092K	0.5190	0.5191	0.5194	0.5194	0.5195	0.5198	0.5200
24	3068K	0.5216	0.5218	0.5219	0.5220	0.5222	0.5224	0.5226
25	3077K	0.5200	0.5202	0.5203	0.5203	0.5206	0.5208	0.5211

Delta u'v' data for tested units
$T_s = T_{air}$ = 55°C, I_f = 60mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3080K	0.0000	0.0006	0.0006	0.0006	0.0007	0.0010	0.0013
2	3103K	0.0000	0.0004	0.0006	0.0006	0.0008	0.0009	0.0012
3	3063K	0.0000	0.0006	0.0007	0.0009	0.0009	0.0010	0.0014
4	3054K	0.0000	0.0006	0.0006	0.0008	0.0007	0.0008	0.0012
5	3086K	0.0000	0.0007	0.0007	0.0008	0.0008	0.0009	0.0011
6	3097K	0.0000	0.0005	0.0006	0.0007	0.0008	0.0009	0.0011
7	3073K	0.0000	0.0006	0.0006	0.0008	0.0008	0.0009	0.0012
8	3072K	0.0000	0.0004	0.0004	0.0005	0.0007	0.0009	0.0012
9	3111K	0.0000	0.0006	0.0007	0.0009	0.0009	0.0011	0.0012
10	3068K	0.0000	0.0005	0.0005	0.0007	0.0007	0.0009	0.0013
11	3047K	0.0000	0.0005	0.0006	0.0008	0.0008	0.0010	0.0013
12	3075K	0.0000	0.0006	0.0006	0.0008	0.0007	0.0009	0.0012
13	3091K	0.0000	0.0004	0.0004	0.0006	0.0008	0.0008	0.0012
14	3061K	0.0000	0.0007	0.0006	0.0009	0.0009	0.0008	0.0012
15	3071K	0.0000	0.0004	0.0005	0.0006	0.0006	0.0009	0.0011
16	3074K	0.0000	0.0005	0.0006	0.0006	0.0007	0.0009	0.0012
17	3121K	0.0000	0.0005	0.0007	0.0008	0.0008	0.0010	0.0012
18	3046K	0.0000	0.0004	0.0004	0.0005	0.0006	0.0008	0.0010
19	3106K	0.0000	0.0006	0.0006	0.0007	0.0006	0.0011	0.0013
20	3066K	0.0000	0.0006	0.0007	0.0007	0.0008	0.0010	0.0011
21	3068K	0.0000	0.0005	0.0006	0.0007	0.0007	0.0010	0.0011
22	3077K	0.0000	0.0005	0.0006	0.0006	0.0008	0.0009	0.0011
23	3092K	0.0000	0.0003	0.0006	0.0006	0.0006	0.0009	0.0010
24	3068K	0.0000	0.0006	0.0006	0.0006	0.0007	0.0009	0.0010
25	3077K	0.0000	0.0005	0.0006	0.0007	0.0008	0.0009	0.0012

Forward Voltage [V] data for tested units
$T_s = T_{air}$ = 55°C, I_f = 60mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3080K	2.848	2.859	2.859	2.864	2.866	2.860	2.870
2	3103K	2.850	2.861	2.862	2.866	2.867	2.866	2.871
3	3063K	2.838	2.845	2.848	2.849	2.852	2.851	2.856
4	3054K	2.843	2.853	2.856	2.857	2.857	2.859	2.865
5	3086K	2.845	2.854	2.855	2.856	2.857	2.856	2.863
6	3097K	2.845	2.855	2.858	2.860	2.860	2.861	2.866
7	3073K	2.850	2.857	2.860	2.862	2.863	2.863	2.867
8	3072K	2.845	2.855	2.858	2.860	2.861	2.862	2.865
9	3111K	2.845	2.859	2.863	2.863	2.864	2.865	2.870
10	3068K	2.843	2.849	2.852	2.852	2.853	2.854	2.858
11	3047K	2.849	2.858	2.860	2.860	2.862	2.864	2.866
12	3075K	2.841	2.849	2.851	2.851	2.852	2.852	2.858
13	3091K	2.840	2.845	2.849	2.849	2.849	2.853	2.857
14	3061K	2.846	2.857	2.856	2.858	2.862	2.858	2.864
15	3071K	2.844	2.855	2.860	2.860	2.863	2.861	2.866
16	3074K	2.835	2.844	2.846	2.850	2.849	2.850	2.852
17	3121K	2.841	2.844	2.849	2.850	2.851	2.852	2.856
18	3046K	2.849	2.856	2.859	2.863	2.860	2.863	2.868
19	3106K	2.845	2.852	2.852	2.854	2.853	2.852	2.859
20	3066K	2.841	2.849	2.847	2.851	2.850	2.849	2.853
21	3068K	2.843	2.845	2.849	2.850	2.853	2.854	2.854
22	3077K	2.845	2.855	2.858	2.859	2.855	2.859	2.865
23	3092K	2.842	2.853	2.856	2.854	2.856	2.856	2.860
24	3068K	2.845	2.856	2.858	2.858	2.862	2.861	2.866
25	3077K	2.852	2.860	2.864	2.866	2.868	2.868	2.873

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3101K	22.349	22.440	22.264	22.390	22.437	22.408	22.296
2	3107K	22.223	22.321	22.040	22.260	22.264	22.202	22.107
3	3085K	22.378	22.506	22.157	22.461	22.487	22.463	22.367
4	3043K	22.286	22.290	21.961	22.180	22.166	22.107	21.987
5	3083K	22.436	22.548	22.364	22.537	22.591	22.413	22.360
6	3074K	22.287	22.335	22.123	22.315	22.345	22.178	22.085
7	3087K	22.421	22.490	22.306	22.468	22.510	22.441	22.394
8	3099K	22.154	22.221	21.940	22.158	22.156	22.094	21.997
9	3106K	22.201	22.192	21.922	22.097	22.194	22.133	22.034
10	3034K	22.125	22.258	21.617	21.831	21.883	21.979	21.897
11	3089K	22.454	22.487	21.676	21.942	22.030	22.043	21.991
12	3053K	22.373	22.445	22.276	22.417	22.480	22.443	22.370
13	3109K	22.464	22.534	22.367	22.463	22.511	22.469	22.386
14	3079K	22.329	22.416	22.267	22.368	22.445	22.431	22.309
15	3108K	22.441	22.425	22.181	22.297	22.351	22.284	22.176
16	3014K	22.265	22.348	22.181	22.254	22.310	22.235	22.142
17	3083K	22.533	22.473	22.278	22.362	22.328	22.297	22.174
18	3078K	22.384	22.420	22.254	22.294	22.273	22.291	22.173
19	3096K	22.377	22.414	22.253	22.319	22.273	22.290	22.187
20	3083K	21.896	22.051	21.808	21.943	21.907	21.968	21.812
21	3058K	22.068	22.230	22.130	22.213	22.181	22.193	22.053
22	3090K	22.609	22.601	22.565	22.592	22.582	22.561	22.422
23	3069K	22.320	22.352	22.311	22.318	22.317	22.276	22.133
24	3094K	22.625	22.637	22.592	22.615	22.568	22.589	22.398
25	3081K	22.373	22.446	22.386	22.433	22.396	22.383	22.237

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3101K	1.000	1.004	0.996	1.002	1.004	1.003	0.998
2	3107K	1.000	1.004	0.992	1.002	1.002	0.999	0.995
3	3085K	1.000	1.006	0.990	1.004	1.005	1.004	0.999
4	3043K	1.000	1.000	0.985	0.995	0.995	0.992	0.987
5	3083K	1.000	1.005	0.997	1.004	1.007	0.999	0.997
6	3074K	1.000	1.002	0.993	1.001	1.003	0.995	0.991
7	3087K	1.000	1.003	0.995	1.002	1.004	1.001	0.999
8	3099K	1.000	1.003	0.990	1.000	1.000	0.997	0.993
9	3106K	1.000	1.000	0.987	0.995	1.000	0.997	0.992
10	3034K	1.000	1.006	0.977	0.987	0.989	0.993	0.990
11	3089K	1.000	1.001	0.965	0.977	0.981	0.982	0.979
12	3053K	1.000	1.003	0.996	1.002	1.005	1.003	1.000
13	3109K	1.000	1.003	0.996	1.000	1.002	1.000	0.997
14	3079K	1.000	1.004	0.997	1.002	1.005	1.005	0.999
15	3108K	1.000	0.999	0.988	0.994	0.996	0.993	0.988
16	3014K	1.000	1.004	0.996	0.999	1.002	0.999	0.994
17	3083K	1.000	0.997	0.989	0.992	0.991	0.990	0.984
18	3078K	1.000	1.002	0.994	0.996	0.995	0.996	0.991
19	3096K	1.000	1.002	0.994	0.997	0.995	0.996	0.992
20	3083K	1.000	1.007	0.996	1.002	1.001	1.003	0.996
21	3058K	1.000	1.007	1.003	1.007	1.005	1.006	0.999
22	3090K	1.000	1.000	0.998	0.999	0.999	0.998	0.992
23	3069K	1.000	1.001	1.000	1.000	1.000	0.998	0.992
24	3094K	1.000	1.001	0.999	1.000	0.998	0.998	0.990
25	3081K	1.000	1.003	1.001	1.003	1.001	1.000	0.994

CIE 1976 u' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3101K	0.2470	0.2463	0.2461	0.2462	0.2464	0.2465	0.2466
2	3107K	0.2471	0.2467	0.2460	0.2462	0.2463	0.2466	0.2469
3	3085K	0.2476	0.2472	0.2464	0.2468	0.2470	0.2472	0.2474
4	3043K	0.2494	0.2485	0.2481	0.2483	0.2485	0.2485	0.2487
5	3083K	0.2474	0.2468	0.2466	0.2467	0.2469	0.2469	0.2473
6	3074K	0.2478	0.2471	0.2467	0.2470	0.2473	0.2471	0.2473
7	3087K	0.2475	0.2468	0.2465	0.2467	0.2468	0.2469	0.2472
8	3099K	0.2471	0.2463	0.2456	0.2460	0.2461	0.2462	0.2464
9	3106K	0.2471	0.2464	0.2459	0.2458	0.2460	0.2462	0.2465
10	3034K	0.2498	0.2492	0.2486	0.2485	0.2485	0.2491	0.2492
11	3089K	0.2473	0.2468	0.2458	0.2459	0.2459	0.2463	0.2465
12	3053K	0.2486	0.2479	0.2477	0.2474	0.2477	0.2479	0.2483
13	3109K	0.2469	0.2462	0.2458	0.2458	0.2461	0.2462	0.2465
14	3079K	0.2477	0.2472	0.2468	0.2469	0.2470	0.2473	0.2474
15	3108K	0.2471	0.2464	0.2459	0.2460	0.2461	0.2463	0.2465
16	3014K	0.2504	0.2500	0.2494	0.2495	0.2496	0.2499	0.2501
17	3083K	0.2474	0.2466	0.2462	0.2464	0.2464	0.2465	0.2469
18	3078K	0.2479	0.2474	0.2471	0.2470	0.2472	0.2475	0.2476
19	3096K	0.2476	0.2470	0.2468	0.2468	0.2468	0.2470	0.2472
20	3083K	0.2481	0.2476	0.2471	0.2474	0.2474	0.2477	0.2479
21	3058K	0.2486	0.2483	0.2484	0.2483	0.2484	0.2486	0.2489
22	3090K	0.2475	0.2468	0.2466	0.2466	0.2467	0.2469	0.2473
23	3069K	0.2483	0.2477	0.2477	0.2477	0.2479	0.2479	0.2482
24	3094K	0.2471	0.2465	0.2465	0.2464	0.2465	0.2466	0.2469
25	3081K	0.2476	0.2471	0.2469	0.2468	0.2469	0.2472	0.2474

CIE 1976 v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3101K	0.5200	0.5202	0.5203	0.5206	0.5208	0.5211	0.5215
2	3107K	0.5185	0.5189	0.5191	0.5190	0.5194	0.5197	0.5201
3	3085K	0.5200	0.5204	0.5202	0.5205	0.5209	0.5211	0.5215
4	3043K	0.5193	0.5195	0.5193	0.5197	0.5198	0.5201	0.5204
5	3083K	0.5208	0.5211	0.5210	0.5214	0.5216	0.5217	0.5222
6	3074K	0.5208	0.5211	0.5211	0.5214	0.5216	0.5218	0.5222
7	3087K	0.5202	0.5204	0.5204	0.5208	0.5209	0.5211	0.5216
8	3099K	0.5195	0.5196	0.5196	0.5199	0.5200	0.5203	0.5207
9	3106K	0.5187	0.5189	0.5191	0.5189	0.5191	0.5196	0.5199
10	3034K	0.5192	0.5195	0.5193	0.5195	0.5195	0.5202	0.5204
11	3089K	0.5201	0.5203	0.5199	0.5202	0.5201	0.5209	0.5211
12	3053K	0.5206	0.5208	0.5209	0.5211	0.5211	0.5216	0.5220
13	3109K	0.5192	0.5195	0.5194	0.5196	0.5199	0.5202	0.5205
14	3079K	0.5204	0.5206	0.5206	0.5209	0.5211	0.5215	0.5218
15	3108K	0.5184	0.5187	0.5185	0.5188	0.5190	0.5194	0.5197
16	3014K	0.5196	0.5200	0.5199	0.5200	0.5202	0.5206	0.5210
17	3083K	0.5208	0.5209	0.5208	0.5211	0.5213	0.5217	0.5220
18	3078K	0.5197	0.5199	0.5201	0.5201	0.5203	0.5208	0.5210
19	3096K	0.5183	0.5185	0.5186	0.5188	0.5190	0.5194	0.5196
20	3083K	0.5185	0.5188	0.5187	0.5191	0.5192	0.5197	0.5200
21	3058K	0.5200	0.5203	0.5205	0.5207	0.5210	0.5213	0.5215
22	3090K	0.5195	0.5197	0.5198	0.5200	0.5201	0.5205	0.5208
23	3069K	0.5195	0.5198	0.5199	0.5202	0.5203	0.5206	0.5209
24	3094K	0.5204	0.5206	0.5208	0.5210	0.5212	0.5216	0.5217
25	3081K	0.5205	0.5208	0.5210	0.5211	0.5214	0.5217	0.5219

Delta u'v' data for tested units

$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3101K	0.0000	0.0007	0.0009	0.0010	0.0010	0.0012	0.0016
2	3107K	0.0000	0.0006	0.0013	0.0010	0.0012	0.0013	0.0016
3	3085K	0.0000	0.0006	0.0012	0.0009	0.0011	0.0012	0.0015
4	3043K	0.0000	0.0009	0.0013	0.0012	0.0010	0.0012	0.0013
5	3083K	0.0000	0.0007	0.0008	0.0009	0.0009	0.0010	0.0014
6	3074K	0.0000	0.0008	0.0011	0.0010	0.0009	0.0012	0.0015
7	3087K	0.0000	0.0007	0.0010	0.0010	0.0010	0.0011	0.0014
8	3099K	0.0000	0.0008	0.0015	0.0012	0.0011	0.0012	0.0014
9	3106K	0.0000	0.0007	0.0013	0.0013	0.0012	0.0013	0.0013
10	3034K	0.0000	0.0007	0.0012	0.0013	0.0013	0.0012	0.0013
11	3089K	0.0000	0.0005	0.0015	0.0014	0.0014	0.0013	0.0013
12	3053K	0.0000	0.0007	0.0009	0.0013	0.0010	0.0012	0.0014
13	3109K	0.0000	0.0008	0.0011	0.0012	0.0011	0.0012	0.0014
14	3079K	0.0000	0.0005	0.0009	0.0009	0.0010	0.0012	0.0014
15	3108K	0.0000	0.0008	0.0012	0.0012	0.0012	0.0013	0.0014
16	3014K	0.0000	0.0006	0.0010	0.0010	0.0010	0.0011	0.0014
17	3083K	0.0000	0.0008	0.0012	0.0010	0.0011	0.0013	0.0013
18	3078K	0.0000	0.0005	0.0009	0.0010	0.0009	0.0012	0.0013
19	3096K	0.0000	0.0006	0.0009	0.0009	0.0011	0.0013	0.0014
20	3083K	0.0000	0.0006	0.0010	0.0009	0.0010	0.0013	0.0015
21	3058K	0.0000	0.0004	0.0005	0.0008	0.0010	0.0013	0.0015
22	3090K	0.0000	0.0007	0.0009	0.0010	0.0010	0.0012	0.0013
23	3069K	0.0000	0.0007	0.0007	0.0009	0.0009	0.0012	0.0014
24	3094K	0.0000	0.0006	0.0007	0.0009	0.0010	0.0013	0.0013
25	3081K	0.0000	0.0006	0.0009	0.0010	0.0011	0.0013	0.0014

Forward Voltage [V] data for tested units

$T_s = T_{air} = 85°C$, $I_f = 60mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3101K	2.852	2.863	2.864	2.865	2.867	2.869	2.874
2	3107K	2.840	2.853	2.854	2.855	2.857	2.859	2.862
3	3085K	2.843	2.857	2.861	2.863	2.861	2.866	2.871
4	3043K	2.838	2.849	2.851	2.856	2.854	2.856	2.859
5	3083K	2.851	2.858	2.863	2.864	2.865	2.865	2.869
6	3074K	2.851	2.861	2.864	2.865	2.867	2.867	2.873
7	3087K	2.855	2.884	2.895	2.898	2.900	2.905	2.909
8	3099K	2.843	2.851	2.855	2.856	2.855	2.857	2.862
9	3106K	2.848	2.861	2.865	2.866	2.866	2.871	2.875
10	3034K	2.840	2.850	2.851	2.853	2.853	2.854	2.859
11	3089K	2.843	2.853	2.853	2.856	2.856	2.857	2.861
12	3053K	2.844	2.854	2.860	2.858	2.859	2.863	2.865
13	3109K	2.852	2.867	2.872	2.874	2.876	2.878	2.884
14	3079K	2.850	2.853	2.858	2.861	2.862	2.865	2.866
15	3108K	2.838	2.843	2.848	2.849	2.850	2.851	2.855
16	3014K	2.838	2.846	2.848	2.850	2.848	2.852	2.855
17	3083K	2.842	2.853	2.856	2.858	2.859	2.860	2.863
18	3078K	2.841	2.853	2.855	2.857	2.856	2.860	2.865
19	3096K	2.842	2.852	2.858	2.858	2.862	2.861	2.865
20	3083K	2.842	2.853	2.857	2.857	2.857	2.861	2.864
21	3058K	2.842	2.853	2.855	2.860	2.858	2.857	2.861
22	3090K	2.836	2.847	2.848	2.850	2.849	2.853	2.858
23	3069K	2.840	2.847	2.852	2.855	2.854	2.853	2.858
24	3094K	2.844	2.858	2.860	2.860	2.863	2.860	2.868
25	3081K	2.847	2.856	2.862	2.863	2.863	2.863	2.867

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 105°C$, $I_f = 60mA$; $T_s \geq 103°C$ and $T_{air} \geq 100°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3041K	22.261	22.326	22.172	22.245	22.114	21.998	21.963
2	3084K	22.395	22.391	22.208	22.283	22.071	21.944	21.904
3	3057K	22.221	22.275	22.147	22.205	22.102	21.931	21.903
4	3062K	22.377	22.479	22.380	22.445	22.334	22.188	22.166
5	3069K	22.107	22.282	22.214	22.308	22.210	22.058	22.030
6	3074K	21.983	22.203	22.000	22.071	22.053	21.865	21.808
7	3086K	22.188	22.287	22.106	22.189	22.064	21.902	21.827
8	3103K	22.102	22.209	21.998	22.030	21.889	21.705	21.748
9	3093K	22.489	22.610	22.452	22.459	22.351	22.193	22.138
10	3112K	22.188	22.358	22.215	22.230	22.092	21.914	21.903
11	3074K	22.146	22.232	22.128	22.162	22.054	21.880	21.836
12	3026K	22.422	22.285	22.159	22.159	22.075	21.871	21.922
13	3064K	22.359	22.373	22.204	22.239	22.165	21.933	21.881
14	3079K	22.609	22.519	22.445	22.453	22.332	22.161	22.135
15	3079K	22.572	22.518	22.436	22.483	22.370	22.217	22.164
16	3047K	22.471	22.478	22.349	22.385	22.277	22.044	21.993
17	3066K	22.495	22.266	22.197	22.167	22.028	21.900	21.815
18	3111K	22.658	21.755	22.060	22.078	22.003	21.844	21.804
19	3054K	22.112	21.675	21.953	21.935	21.832	21.653	21.560
20	3120K	22.484	22.337	22.365	22.402	22.333	22.145	22.114
21	3104K	22.495	22.485	22.327	22.341	22.239	22.066	22.016
22	3056K	22.271	22.171	22.000	21.991	21.922	21.709	21.707
23	3093K	22.462	22.429	22.267	22.287	22.204	22.036	21.973
24	3039K	22.252	22.178	21.963	21.970	21.899	21.758	21.705
25	3064K	22.273	22.398	22.275	22.308	22.311	22.108	22.073

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 105°C$, $I_f = 60mA$; $T_s \geq 103°C$ and $T_{air} \geq 100°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3041K	1.000	1.003	0.996	0.999	0.993	0.988	0.987
2	3084K	1.000	1.000	0.992	0.995	0.986	0.980	0.978
3	3057K	1.000	1.002	0.997	0.999	0.995	0.987	0.986
4	3062K	1.000	1.005	1.000	1.003	0.998	0.992	0.991
5	3069K	1.000	1.008	1.005	1.009	1.005	0.998	0.996
6	3074K	1.000	1.010	1.001	1.004	1.003	0.995	0.992
7	3086K	1.000	1.005	0.996	1.000	0.994	0.987	0.984
8	3103K	1.000	1.005	0.995	0.997	0.990	0.982	0.984
9	3093K	1.000	1.005	0.998	0.999	0.994	0.987	0.984
10	3112K	1.000	1.008	1.001	1.002	0.996	0.988	0.987
11	3074K	1.000	1.004	0.999	1.001	0.996	0.988	0.986
12	3026K	1.000	0.994	0.988	0.988	0.985	0.975	0.978
13	3064K	1.000	1.001	0.993	0.995	0.991	0.981	0.979
14	3079K	1.000	0.996	0.993	0.993	0.988	0.980	0.979
15	3079K	1.000	0.998	0.994	0.996	0.991	0.984	0.982
16	3047K	1.000	1.000	0.995	0.996	0.991	0.981	0.979
17	3066K	1.000	0.990	0.987	0.985	0.979	0.974	0.970
18	3111K	1.000	0.960	0.974	0.974	0.971	0.964	0.962
19	3054K	1.000	0.980	0.993	0.992	0.987	0.979	0.975
20	3120K	1.000	0.993	0.995	0.996	0.993	0.985	0.984
21	3104K	1.000	1.000	0.993	0.993	0.989	0.981	0.979
22	3056K	1.000	0.996	0.988	0.987	0.984	0.975	0.975
23	3093K	1.000	0.999	0.991	0.992	0.989	0.981	0.978
24	3039K	1.000	0.997	0.987	0.987	0.984	0.978	0.975
25	3064K	1.000	1.006	1.000	1.002	1.002	0.993	0.991

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3041K	0.2488	0.2481	0.2482	0.2482	0.2484	0.2485	0.2485
2	3084K	0.2478	0.2469	0.2469	0.2470	0.2473	0.2473	0.2472
3	3057K	0.2487	0.2478	0.2477	0.2478	0.2478	0.2480	0.2480
4	3062K	0.2480	0.2472	0.2473	0.2473	0.2476	0.2478	0.2477
5	3069K	0.2481	0.2474	0.2474	0.2476	0.2478	0.2480	0.2480
6	3074K	0.2477	0.2470	0.2469	0.2470	0.2473	0.2473	0.2472
7	3086K	0.2477	0.2471	0.2470	0.2471	0.2473	0.2475	0.2474
8	3103K	0.2474	0.2467	0.2466	0.2467	0.2468	0.2470	0.2469
9	3093K	0.2473	0.2467	0.2467	0.2468	0.2469	0.2471	0.2470
10	3112K	0.2467	0.2460	0.2460	0.2459	0.2462	0.2462	0.2462
11	3074K	0.2482	0.2472	0.2472	0.2473	0.2474	0.2477	0.2477
12	3026K	0.2498	0.2489	0.2489	0.2488	0.2490	0.2493	0.2492
13	3064K	0.2484	0.2476	0.2474	0.2475	0.2479	0.2480	0.2480
14	3079K	0.2482	0.2475	0.2474	0.2476	0.2478	0.2481	0.2479
15	3079K	0.2475	0.2467	0.2468	0.2468	0.2470	0.2474	0.2472
16	3047K	0.2492	0.2484	0.2484	0.2484	0.2487	0.2487	0.2486
17	3066K	0.2485	0.2474	0.2475	0.2476	0.2477	0.2479	0.2478
18	3111K	0.2465	0.2446	0.2449	0.2451	0.2453	0.2454	0.2453
19	3054K	0.2489	0.2478	0.2481	0.2481	0.2481	0.2484	0.2484
20	3120K	0.2467	0.2460	0.2461	0.2462	0.2464	0.2466	0.2465
21	3104K	0.2473	0.2465	0.2465	0.2466	0.2468	0.2470	0.2470
22	3056K	0.2487	0.2477	0.2477	0.2478	0.2479	0.2480	0.2480
23	3093K	0.2474	0.2467	0.2467	0.2468	0.2469	0.2470	0.2471
24	3039K	0.2495	0.2488	0.2487	0.2487	0.2490	0.2492	0.2492
25	3064K	0.2480	0.2475	0.2476	0.2477	0.2480	0.2481	0.2480

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3041K	0.5216	0.5220	0.5222	0.5224	0.5226	0.5228	0.5232
2	3084K	0.5192	0.5196	0.5196	0.5200	0.5202	0.5203	0.5206
3	3057K	0.5198	0.5201	0.5203	0.5207	0.5209	0.5210	0.5214
4	3062K	0.5215	0.5219	0.5222	0.5224	0.5227	0.5228	0.5231
5	3069K	0.5202	0.5207	0.5209	0.5214	0.5216	0.5217	0.5221
6	3074K	0.5209	0.5214	0.5214	0.5217	0.5221	0.5220	0.5225
7	3086K	0.5195	0.5200	0.5201	0.5203	0.5206	0.5206	0.5211
8	3103K	0.5178	0.5182	0.5183	0.5186	0.5188	0.5189	0.5194
9	3093K	0.5198	0.5203	0.5205	0.5208	0.5210	0.5211	0.5215
10	3112K	0.5191	0.5196	0.5197	0.5199	0.5202	0.5204	0.5207
11	3074K	0.5195	0.5198	0.5200	0.5203	0.5204	0.5205	0.5210
12	3026K	0.5204	0.5207	0.5209	0.5212	0.5215	0.5217	0.5219
13	3064K	0.5198	0.5200	0.5203	0.5206	0.5210	0.5210	0.5214
14	3079K	0.5187	0.5190	0.5193	0.5196	0.5198	0.5200	0.5202
15	3079K	0.5213	0.5215	0.5219	0.5222	0.5223	0.5225	0.5228
16	3047K	0.5195	0.5200	0.5203	0.5206	0.5208	0.5208	0.5212
17	3066K	0.5193	0.5196	0.5197	0.5200	0.5201	0.5203	0.5205
18	3111K	0.5200	0.5196	0.5200	0.5202	0.5206	0.5207	0.5210
19	3054K	0.5195	0.5197	0.5200	0.5202	0.5203	0.5204	0.5207
20	3120K	0.5184	0.5189	0.5191	0.5193	0.5196	0.5197	0.5200
21	3104K	0.5185	0.5190	0.5191	0.5195	0.5196	0.5197	0.5200
22	3056K	0.5199	0.5202	0.5204	0.5206	0.5208	0.5211	0.5213
23	3093K	0.5193	0.5197	0.5199	0.5201	0.5204	0.5205	0.5207
24	3039K	0.5195	0.5199	0.5201	0.5203	0.5205	0.5206	0.5209
25	3064K	0.5216	0.5222	0.5224	0.5227	0.5230	0.5231	0.5236

Delta u'v' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3041K	0.0000	0.0008	0.0008	0.0010	0.0011	0.0012	0.0016
2	3084K	0.0000	0.0010	0.0010	0.0011	0.0011	0.0012	0.0015
3	3057K	0.0000	0.0009	0.0011	0.0013	0.0014	0.0014	0.0017
4	3062K	0.0000	0.0009	0.0010	0.0011	0.0013	0.0013	0.0016
5	3069K	0.0000	0.0009	0.0010	0.0013	0.0014	0.0015	0.0019
6	3074K	0.0000	0.0009	0.0009	0.0011	0.0013	0.0012	0.0017
7	3086K	0.0000	0.0008	0.0009	0.0010	0.0012	0.0011	0.0016
8	3103K	0.0000	0.0008	0.0009	0.0011	0.0012	0.0012	0.0017
9	3093K	0.0000	0.0008	0.0009	0.0011	0.0013	0.0013	0.0017
10	3112K	0.0000	0.0009	0.0009	0.0011	0.0012	0.0014	0.0017
11	3074K	0.0000	0.0010	0.0011	0.0012	0.0012	0.0011	0.0016
12	3026K	0.0000	0.0009	0.0010	0.0013	0.0014	0.0014	0.0016
13	3064K	0.0000	0.0008	0.0011	0.0012	0.0013	0.0013	0.0016
14	3079K	0.0000	0.0008	0.0010	0.0011	0.0012	0.0013	0.0015
15	3079K	0.0000	0.0008	0.0009	0.0011	0.0011	0.0012	0.0015
16	3047K	0.0000	0.0009	0.0011	0.0014	0.0014	0.0014	0.0018
17	3066K	0.0000	0.0011	0.0011	0.0011	0.0011	0.0012	0.0014
18	3111K	0.0000	0.0019	0.0016	0.0014	0.0013	0.0013	0.0016
19	3054K	0.0000	0.0011	0.0009	0.0011	0.0011	0.0010	0.0013
20	3120K	0.0000	0.0009	0.0009	0.0010	0.0012	0.0013	0.0016
21	3104K	0.0000	0.0009	0.0010	0.0012	0.0012	0.0012	0.0015
22	3056K	0.0000	0.0010	0.0011	0.0011	0.0012	0.0014	0.0016
23	3093K	0.0000	0.0008	0.0009	0.0010	0.0012	0.0013	0.0014
24	3039K	0.0000	0.0008	0.0010	0.0011	0.0011	0.0011	0.0014
25	3064K	0.0000	0.0008	0.0009	0.0011	0.0014	0.0015	0.0020

Forward Voltage [V] data for tested units
$T_s = T_{air}$ = 105°C, I_f = 60mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3041K	2.847	2.859	2.860	2.863	2.866	2.863	2.871
2	3084K	2.838	2.850	2.850	2.850	2.851	2.853	2.856
3	3057K	2.839	2.846	2.852	2.855	2.855	2.857	2.861
4	3062K	2.842	2.857	2.859	2.859	2.860	2.863	2.868
5	3069K	2.846	2.854	2.856	2.858	2.858	2.862	2.865
6	3074K	2.846	2.859	2.863	2.863	2.866	2.866	2.873
7	3086K	2.845	2.855	2.856	2.857	2.860	2.860	2.865
8	3103K	2.846	2.854	2.862	2.864	2.862	2.865	2.868
9	3093K	2.839	2.847	2.849	2.851	2.850	2.852	2.859
10	3112K	2.845	2.860	2.862	2.863	2.864	2.863	2.871
11	3074K	2.847	2.860	2.862	2.863	2.864	2.867	2.871
12	3026K	2.846	2.863	2.866	2.869	2.869	2.871	2.874
13	3064K	2.850	2.859	2.859	2.863	2.862	2.864	2.877
14	3079K	2.840	2.846	2.848	2.850	2.852	2.850	2.856
15	3079K	2.843	2.854	2.859	2.861	2.864	2.864	2.872
16	3047K	2.841	2.853	2.855	2.856	2.857	2.855	2.864
17	3066K	2.849	2.860	2.867	2.870	2.869	2.873	2.877
18	3111K	2.846	2.853	2.859	2.860	2.860	2.862	2.876
19	3054K	2.843	2.853	2.856	2.857	2.858	2.859	2.861
20	3120K	2.839	2.848	2.852	2.852	2.854	2.856	2.860
21	3104K	2.842	2.856	2.861	2.860	2.864	2.865	2.871
22	3056K	2.845	2.858	2.859	2.862	2.864	2.864	2.866
23	3093K	2.841	2.848	2.853	2.855	2.855	2.857	2.861
24	3039K	2.839	2.849	2.852	2.854	2.854	2.856	2.860
25	3064K	2.843	2.854	2.859	2.862	2.862	2.863	2.872

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 55°C$, $I_f = 120mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3115K	42.653	42.947	42.839	43.123	43.054	43.065	42.801
2	3112K	43.091	43.494	43.340	43.573	43.564	43.545	43.260
3	3086K	42.592	42.875	42.750	42.984	42.876	42.944	42.517
4	3099K	42.756	43.068	42.977	43.243	43.193	43.226	42.951
5	3083K	42.652	42.943	42.812	43.130	43.029	43.095	42.770
6	3058K	42.778	43.140	42.950	43.211	43.133	43.188	42.859
7	3126K	42.924	43.056	42.854	43.107	42.945	43.057	42.732
8	3094K	42.376	42.841	42.540	42.784	42.721	42.801	42.496
9	3086K	42.434	42.737	42.618	42.876	42.780	42.775	42.546
10	3084K	42.267	42.588	42.425	42.669	42.618	42.695	42.464
11	3102K	42.613	42.944	42.804	43.017	42.937	42.958	42.658
12	3094K	42.532	42.783	42.691	42.882	42.825	42.920	42.661
13	3130K	43.033	43.305	43.165	43.376	43.255	43.367	43.111
14	3081K	42.255	42.428	42.306	42.528	42.401	42.540	42.179
15	3105K	43.050	43.356	43.291	43.497	43.384	43.505	43.163
16	3082K	42.496	43.065	42.894	43.023	43.075	42.945	42.853
17	3124K	42.778	43.135	42.993	43.202	43.216	43.054	43.042
18	3063K	42.426	42.659	42.509	42.680	42.669	42.463	42.518
19	3097K	42.864	43.060	42.961	42.969	42.987	42.884	42.829
20	3092K	42.697	42.999	42.834	42.943	42.951	42.813	42.838
21	3112K	43.039	43.390	43.243	43.351	43.364	43.170	43.268
22	3096K	42.779	43.088	42.979	43.146	43.095	42.955	42.998
23	3112K	42.609	42.882	42.716	42.888	42.870	42.662	42.751
24	3074K	42.712	42.951	42.792	42.950	42.862	42.724	42.788
25	3061K	42.547	42.835	42.692	42.844	42.758	42.594	42.801

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 55°C$, $I_f = 120mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3115K	1.000	1.007	1.004	1.011	1.009	1.010	1.003
2	3112K	1.000	1.009	1.006	1.011	1.011	1.011	1.004
3	3086K	1.000	1.007	1.004	1.009	1.007	1.008	0.998
4	3099K	1.000	1.007	1.005	1.011	1.010	1.011	1.005
5	3083K	1.000	1.007	1.004	1.011	1.009	1.010	1.003
6	3058K	1.000	1.008	1.004	1.010	1.008	1.010	1.002
7	3126K	1.000	1.003	0.998	1.004	1.000	1.003	0.996
8	3094K	1.000	1.011	1.004	1.010	1.008	1.010	1.003
9	3086K	1.000	1.007	1.004	1.010	1.008	1.008	1.003
10	3084K	1.000	1.008	1.004	1.009	1.008	1.010	1.005
11	3102K	1.000	1.008	1.004	1.009	1.008	1.008	1.001
12	3094K	1.000	1.006	1.004	1.008	1.007	1.009	1.003
13	3130K	1.000	1.006	1.003	1.008	1.005	1.008	1.002
14	3081K	1.000	1.004	1.001	1.006	1.003	1.007	0.998
15	3105K	1.000	1.007	1.006	1.010	1.008	1.011	1.003
16	3082K	1.000	1.013	1.009	1.012	1.014	1.011	1.008
17	3124K	1.000	1.008	1.005	1.010	1.010	1.006	1.006
18	3063K	1.000	1.005	1.002	1.006	1.006	1.001	1.002
19	3097K	1.000	1.005	1.002	1.002	1.003	1.000	0.999
20	3092K	1.000	1.007	1.003	1.006	1.006	1.003	1.003
21	3112K	1.000	1.008	1.005	1.007	1.008	1.003	1.005
22	3096K	1.000	1.007	1.005	1.009	1.007	1.004	1.005
23	3112K	1.000	1.006	1.003	1.007	1.006	1.001	1.003
24	3074K	1.000	1.006	1.002	1.006	1.004	1.000	1.002
25	3061K	1.000	1.007	1.003	1.007	1.005	1.001	1.006

CIE 1976 u' data for tested units
$T_s = T_{air} = 55°C$, $I_f = 120mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3115K	0.2464	0.2459	0.2459	0.2458	0.2460	0.2460	0.2461
2	3112K	0.2461	0.2458	0.2458	0.2458	0.2458	0.2459	0.2460
3	3086K	0.2477	0.2472	0.2472	0.2471	0.2471	0.2472	0.2474
4	3099K	0.2469	0.2464	0.2464	0.2463	0.2465	0.2465	0.2466
5	3083K	0.2477	0.2471	0.2471	0.2469	0.2471	0.2472	0.2473
6	3058K	0.2478	0.2473	0.2472	0.2471	0.2473	0.2473	0.2475
7	3126K	0.2460	0.2453	0.2453	0.2450	0.2452	0.2451	0.2453
8	3094K	0.2469	0.2464	0.2462	0.2461	0.2462	0.2462	0.2464
9	3086K	0.2476	0.2470	0.2469	0.2469	0.2470	0.2470	0.2472
10	3084K	0.2474	0.2469	0.2468	0.2467	0.2469	0.2470	0.2471
11	3102K	0.2471	0.2466	0.2466	0.2464	0.2465	0.2466	0.2467
12	3094K	0.2474	0.2468	0.2468	0.2467	0.2468	0.2469	0.2472
13	3130K	0.2457	0.2450	0.2450	0.2448	0.2450	0.2450	0.2451
14	3081K	0.2478	0.2472	0.2471	0.2471	0.2471	0.2472	0.2473
15	3105K	0.2468	0.2463	0.2462	0.2462	0.2462	0.2463	0.2465
16	3082K	0.2474	0.2467	0.2467	0.2468	0.2468	0.2469	0.2470
17	3124K	0.2461	0.2456	0.2456	0.2456	0.2457	0.2457	0.2459
18	3063K	0.2482	0.2475	0.2475	0.2473	0.2474	0.2475	0.2477
19	3097K	0.2472	0.2465	0.2465	0.2464	0.2464	0.2465	0.2467
20	3092K	0.2473	0.2468	0.2467	0.2467	0.2468	0.2468	0.2470
21	3112K	0.2463	0.2457	0.2456	0.2456	0.2457	0.2458	0.2459
22	3096K	0.2472	0.2466	0.2467	0.2466	0.2468	0.2468	0.2467
23	3112K	0.2466	0.2460	0.2459	0.2459	0.2460	0.2461	0.2462
24	3074K	0.2479	0.2473	0.2474	0.2472	0.2473	0.2474	0.2475
25	3061K	0.2480	0.2474	0.2474	0.2473	0.2474	0.2474	0.2476

CIE 1976 v' data for tested units
$T_s = T_{air} = 55°C$, $I_f = 120mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3115K	0.5200	0.5203	0.5204	0.5206	0.5208	0.5211	0.5214
2	3112K	0.5216	0.5220	0.5222	0.5223	0.5225	0.5228	0.5232
3	3086K	0.5191	0.5194	0.5195	0.5196	0.5198	0.5202	0.5204
4	3099K	0.5204	0.5207	0.5208	0.5209	0.5212	0.5214	0.5218
5	3083K	0.5198	0.5200	0.5202	0.5203	0.5205	0.5207	0.5211
6	3058K	0.5227	0.5229	0.5230	0.5231	0.5234	0.5236	0.5239
7	3126K	0.5199	0.5201	0.5201	0.5203	0.5204	0.5207	0.5210
8	3094K	0.5212	0.5215	0.5215	0.5218	0.5218	0.5221	0.5224
9	3086K	0.5198	0.5200	0.5202	0.5203	0.5205	0.5207	0.5211
10	3084K	0.5205	0.5208	0.5209	0.5210	0.5212	0.5215	0.5219
11	3102K	0.5193	0.5196	0.5197	0.5198	0.5200	0.5203	0.5205
12	3094K	0.5194	0.5197	0.5198	0.5199	0.5201	0.5204	0.5207
13	3130K	0.5207	0.5209	0.5210	0.5211	0.5213	0.5216	0.5219
14	3081K	0.5197	0.5199	0.5199	0.5201	0.5203	0.5205	0.5209
15	3105K	0.5200	0.5204	0.5205	0.5206	0.5208	0.5211	0.5213
16	3082K	0.5209	0.5213	0.5214	0.5215	0.5217	0.5220	0.5222
17	3124K	0.5199	0.5201	0.5203	0.5205	0.5207	0.5209	0.5213
18	3063K	0.5209	0.5212	0.5214	0.5214	0.5216	0.5218	0.5222
19	3097K	0.5198	0.5200	0.5202	0.5203	0.5204	0.5207	0.5211
20	3092K	0.5198	0.5200	0.5201	0.5203	0.5205	0.5207	0.5211
21	3112K	0.5206	0.5208	0.5209	0.5210	0.5213	0.5215	0.5219
22	3096K	0.5198	0.5199	0.5202	0.5203	0.5205	0.5207	0.5208
23	3112K	0.5196	0.5198	0.5200	0.5201	0.5203	0.5206	0.5209
24	3074K	0.5202	0.5204	0.5206	0.5207	0.5209	0.5211	0.5215
25	3061K	0.5218	0.5220	0.5221	0.5222	0.5224	0.5226	0.5231

Delta u'v' data for tested units
$T_s = T_{air} = 55°C$, $I_f = 120mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3115K	0.0000	0.0006	0.0006	0.0008	0.0009	0.0012	0.0014
2	3112K	0.0000	0.0005	0.0007	0.0008	0.0009	0.0012	0.0016
3	3086K	0.0000	0.0006	0.0006	0.0008	0.0009	0.0012	0.0013
4	3099K	0.0000	0.0006	0.0006	0.0008	0.0009	0.0011	0.0014
5	3083K	0.0000	0.0006	0.0007	0.0009	0.0009	0.0010	0.0014
6	3058K	0.0000	0.0005	0.0007	0.0008	0.0009	0.0010	0.0012
7	3126K	0.0000	0.0007	0.0007	0.0011	0.0009	0.0012	0.0013
8	3094K	0.0000	0.0006	0.0008	0.0010	0.0009	0.0011	0.0013
9	3086K	0.0000	0.0006	0.0008	0.0009	0.0009	0.0011	0.0014
10	3084K	0.0000	0.0006	0.0007	0.0009	0.0009	0.0011	0.0014
11	3102K	0.0000	0.0006	0.0006	0.0009	0.0009	0.0011	0.0013
12	3094K	0.0000	0.0007	0.0007	0.0009	0.0009	0.0011	0.0013
13	3130K	0.0000	0.0007	0.0008	0.0010	0.0009	0.0011	0.0013
14	3081K	0.0000	0.0006	0.0007	0.0008	0.0009	0.0010	0.0013
15	3105K	0.0000	0.0006	0.0008	0.0008	0.0010	0.0012	0.0013
16	3082K	0.0000	0.0008	0.0009	0.0008	0.0010	0.0012	0.0014
17	3124K	0.0000	0.0005	0.0006	0.0008	0.0009	0.0011	0.0014
18	3063K	0.0000	0.0008	0.0009	0.0010	0.0011	0.0011	0.0014
19	3097K	0.0000	0.0007	0.0008	0.0009	0.0010	0.0011	0.0014
20	3092K	0.0000	0.0005	0.0007	0.0008	0.0009	0.0010	0.0013
21	3112K	0.0000	0.0006	0.0008	0.0008	0.0009	0.0010	0.0014
22	3096K	0.0000	0.0006	0.0006	0.0008	0.0008	0.0010	0.0011
23	3112K	0.0000	0.0006	0.0008	0.0009	0.0009	0.0011	0.0014
24	3074K	0.0000	0.0006	0.0006	0.0009	0.0009	0.0010	0.0014
25	3061K	0.0000	0.0006	0.0007	0.0008	0.0008	0.0010	0.0014

Forward Voltage [V] data for tested units
$T_s = T_{air} = 55°C$, $I_f = 120mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3115K	3.063	3.082	3.085	3.093	3.095	3.095	3.102
2	3112K	3.071	3.094	3.100	3.106	3.109	3.111	3.116
3	3086K	3.057	3.086	3.093	3.095	3.099	3.101	3.107
4	3099K	3.072	3.135	3.144	3.147	3.153	3.160	3.166
5	3083K	3.048	3.067	3.074	3.075	3.075	3.078	3.085
6	3058K	3.055	3.081	3.079	3.086	3.091	3.092	3.092
7	3126K	3.056	3.079	3.082	3.088	3.089	3.087	3.097
8	3094K	3.049	3.075	3.077	3.080	3.088	3.089	3.093
9	3086K	3.063	3.082	3.086	3.090	3.091	3.095	3.095
10	3084K	3.058	3.083	3.092	3.093	3.095	3.097	3.105
11	3102K	3.045	3.063	3.067	3.072	3.069	3.072	3.080
12	3094K	3.066	3.091	3.098	3.100	3.106	3.105	3.109
13	3130K	3.051	3.071	3.074	3.077	3.081	3.079	3.085
14	3081K	3.059	3.071	3.081	3.086	3.089	3.091	3.094
15	3105K	3.049	3.067	3.072	3.073	3.076	3.078	3.083
16	3082K	3.058	3.079	3.088	3.090	3.092	3.095	3.103
17	3124K	3.062	3.087	3.093	3.093	3.094	3.104	3.107
18	3063K	3.055	3.086	3.091	3.090	3.098	3.098	3.103
19	3097K	3.058	3.091	3.094	3.102	3.098	3.104	3.105
20	3092K	3.058	3.087	3.096	3.095	3.098	3.097	3.104
21	3112K	3.058	3.081	3.093	3.095	3.097	3.099	3.105
22	3096K	3.062	3.097	3.104	3.108	3.109	3.112	3.120
23	3112K	3.056	3.079	3.087	3.090	3.091	3.099	3.101
24	3074K	3.048	3.067	3.076	3.077	3.080	3.078	3.085
25	3061K	3.054	3.078	3.084	3.088	3.090	3.091	3.099

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 85°C$, $I_f = 120mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3065K	42.163	42.537	42.237	42.469	42.301	42.243	42.060
2	3062K	42.598	42.974	42.727	42.913	42.752	42.677	42.611
3	3101K	42.982	43.361	43.076	43.235	43.118	42.969	42.805
4	3099K	42.855	43.337	43.123	43.366	43.281	43.116	42.866
5	3094K	42.563	42.967	42.657	42.834	42.697	42.645	42.615
6	3065K	42.245	42.717	42.636	42.789	42.633	42.575	42.456
7	3096K	42.329	42.769	42.549	42.895	42.660	42.531	42.477
8	3110K	42.593	43.013	42.803	43.005	42.918	42.868	42.778
9	3079K	42.603	42.680	42.386	42.573	42.427	42.358	42.243
10	3081K	42.448	42.866	42.557	42.797	42.623	42.588	42.422
11	3123K	42.265	42.862	42.611	42.816	42.731	42.605	42.500
12	3095K	42.709	43.218	42.993	43.193	43.102	43.005	42.876
13	3092K	42.927	42.872	42.534	42.648	42.508	42.365	42.305
14	3088K	42.402	42.968	42.771	42.829	42.690	42.534	42.399
15	3116K	42.611	43.042	42.782	42.955	42.855	42.658	42.587
16	3095K	42.846	42.913	42.917	43.026	42.964	42.619	42.479
17	3095K	42.959	43.116	42.910	43.051	43.005	42.684	42.667
18	3058K	42.233	42.487	42.330	42.511	42.488	42.166	42.137
19	3110K	42.542	42.621	42.358	42.526	42.426	42.105	42.053
20	3073K	42.496	42.791	42.532	42.741	42.649	42.377	42.245
21	3042K	42.293	42.435	42.154	42.248	42.166	41.919	41.916
22	3092K	42.744	42.746	42.618	42.795	42.715	42.386	42.349
23	3063K	42.557	42.722	42.593	42.718	42.639	42.337	42.302
24	3153K	43.107	43.028	42.788	42.916	42.830	42.535	42.500
25	3110K	42.470	42.579	42.377	42.517	42.413	42.138	42.056

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 85°C$, $I_f = 120mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3065K	1.000	1.009	1.002	1.007	1.003	1.002	0.998
2	3062K	1.000	1.009	1.003	1.007	1.004	1.002	1.000
3	3101K	1.000	1.009	1.002	1.006	1.003	1.000	0.996
4	3099K	1.000	1.011	1.006	1.012	1.010	1.006	1.000
5	3094K	1.000	1.010	1.002	1.006	1.003	1.002	1.001
6	3065K	1.000	1.011	1.009	1.013	1.009	1.008	1.005
7	3096K	1.000	1.010	1.005	1.013	1.008	1.005	1.004
8	3110K	1.000	1.010	1.005	1.010	1.008	1.006	1.004
9	3079K	1.000	1.002	0.995	0.999	0.996	0.994	0.992
10	3081K	1.000	1.010	1.003	1.008	1.004	1.003	0.999
11	3123K	1.000	1.014	1.008	1.013	1.011	1.008	1.006
12	3095K	1.000	1.012	1.007	1.011	1.009	1.007	1.004
13	3092K	1.000	0.999	0.991	0.993	0.990	0.987	0.986
14	3088K	1.000	1.013	1.009	1.010	1.007	1.003	1.000
15	3116K	1.000	1.010	1.004	1.008	1.006	1.001	0.999
16	3095K	1.000	1.002	1.002	1.004	1.003	0.995	0.991
17	3095K	1.000	1.004	0.999	1.002	1.001	0.994	0.993
18	3058K	1.000	1.006	1.002	1.007	1.006	0.998	0.998
19	3110K	1.000	1.002	0.996	1.000	0.997	0.990	0.988
20	3073K	1.000	1.007	1.001	1.006	1.004	0.997	0.994
21	3042K	1.000	1.003	0.997	0.999	0.997	0.991	0.991
22	3092K	1.000	1.000	0.997	1.001	0.999	0.992	0.991
23	3063K	1.000	1.004	1.001	1.004	1.002	0.995	0.994
24	3153K	1.000	0.998	0.993	0.996	0.994	0.987	0.986
25	3110K	1.000	1.003	0.998	1.001	0.999	0.992	0.990

CIE 1976 u' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 120mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3065K	0.2481	0.2471	0.2473	0.2473	0.2473	0.2475	0.2475
2	3062K	0.2479	0.2473	0.2472	0.2473	0.2473	0.2474	0.2475
3	3101K	0.2464	0.2457	0.2457	0.2457	0.2458	0.2460	0.2461
4	3099K	0.2466	0.2460	0.2460	0.2460	0.2462	0.2464	0.2464
5	3094K	0.2469	0.2461	0.2460	0.2461	0.2462	0.2463	0.2464
6	3065K	0.2479	0.2471	0.2471	0.2471	0.2473	0.2474	0.2475
7	3096K	0.2473	0.2464	0.2464	0.2466	0.2466	0.2467	0.2468
8	3110K	0.2466	0.2460	0.2459	0.2461	0.2461	0.2464	0.2464
9	3079K	0.2475	0.2465	0.2465	0.2466	0.2467	0.2468	0.2468
10	3081K	0.2478	0.2472	0.2471	0.2471	0.2472	0.2474	0.2474
11	3123K	0.2463	0.2457	0.2456	0.2458	0.2458	0.2461	0.2460
12	3095K	0.2472	0.2467	0.2467	0.2468	0.2468	0.2471	0.2471
13	3092K	0.2472	0.2461	0.2460	0.2460	0.2460	0.2462	0.2462
14	3088K	0.2474	0.2467	0.2468	0.2469	0.2470	0.2472	0.2472
15	3116K	0.2464	0.2458	0.2457	0.2459	0.2459	0.2461	0.2461
16	3095K	0.2469	0.2462	0.2463	0.2463	0.2464	0.2466	0.2464
17	3095K	0.2472	0.2465	0.2465	0.2466	0.2467	0.2468	0.2468
18	3058K	0.2488	0.2481	0.2481	0.2482	0.2483	0.2485	0.2486
19	3110K	0.2466	0.2457	0.2456	0.2456	0.2458	0.2459	0.2460
20	3073K	0.2478	0.2471	0.2471	0.2470	0.2472	0.2475	0.2475
21	3042K	0.2487	0.2478	0.2477	0.2477	0.2479	0.2481	0.2481
22	3092K	0.2474	0.2466	0.2465	0.2466	0.2468	0.2470	0.2470
23	3063K	0.2482	0.2475	0.2474	0.2476	0.2477	0.2480	0.2479
24	3153K	0.2448	0.2439	0.2437	0.2439	0.2439	0.2440	0.2440
25	3110K	0.2467	0.2459	0.2458	0.2459	0.2459	0.2461	0.2461

CIE 1976 v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 120mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3065K	0.5209	0.5212	0.5214	0.5217	0.5220	0.5223	0.5225
2	3062K	0.5219	0.5224	0.5226	0.5229	0.5233	0.5235	0.5238
3	3101K	0.5218	0.5223	0.5224	0.5228	0.5231	0.5235	0.5236
4	3099K	0.5215	0.5220	0.5222	0.5225	0.5229	0.5232	0.5234
5	3094K	0.5214	0.5217	0.5219	0.5222	0.5224	0.5228	0.5231
6	3065K	0.5217	0.5220	0.5222	0.5224	0.5228	0.5231	0.5234
7	3096K	0.5194	0.5198	0.5200	0.5203	0.5206	0.5210	0.5213
8	3110K	0.5198	0.5202	0.5205	0.5208	0.5211	0.5214	0.5218
9	3079K	0.5211	0.5212	0.5215	0.5218	0.5222	0.5225	0.5228
10	3081K	0.5197	0.5200	0.5202	0.5206	0.5209	0.5212	0.5214
11	3123K	0.5193	0.5197	0.5199	0.5203	0.5206	0.5209	0.5211
12	3095K	0.5199	0.5203	0.5206	0.5209	0.5212	0.5216	0.5218
13	3092K	0.5203	0.5203	0.5205	0.5208	0.5211	0.5214	0.5217
14	3088K	0.5204	0.5209	0.5211	0.5214	0.5217	0.5220	0.5223
15	3116K	0.5199	0.5203	0.5205	0.5209	0.5212	0.5215	0.5217
16	3095K	0.5208	0.5212	0.5215	0.5217	0.5220	0.5222	0.5225
17	3095K	0.5198	0.5202	0.5204	0.5208	0.5210	0.5212	0.5216
18	3058K	0.5192	0.5196	0.5198	0.5202	0.5205	0.5207	0.5210
19	3110K	0.5199	0.5203	0.5205	0.5207	0.5211	0.5212	0.5215
20	3073K	0.5208	0.5213	0.5215	0.5217	0.5221	0.5223	0.5226
21	3042K	0.5218	0.5221	0.5224	0.5226	0.5230	0.5231	0.5235
22	3092K	0.5197	0.5199	0.5201	0.5205	0.5208	0.5209	0.5213
23	3063K	0.5207	0.5210	0.5212	0.5216	0.5219	0.5220	0.5224
24	3153K	0.5203	0.5205	0.5207	0.5210	0.5213	0.5214	0.5218
25	3110K	0.5198	0.5201	0.5203	0.5206	0.5209	0.5211	0.5214

Delta u'v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 120mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3065K	0.0000	0.0010	0.0009	0.0011	0.0014	0.0015	0.0017
2	3062K	0.0000	0.0008	0.0010	0.0012	0.0015	0.0017	0.0019
3	3101K	0.0000	0.0009	0.0009	0.0012	0.0014	0.0017	0.0018
4	3099K	0.0000	0.0008	0.0009	0.0012	0.0015	0.0017	0.0019
5	3094K	0.0000	0.0009	0.0010	0.0011	0.0012	0.0015	0.0018
6	3065K	0.0000	0.0009	0.0009	0.0011	0.0013	0.0015	0.0017
7	3096K	0.0000	0.0010	0.0011	0.0011	0.0014	0.0017	0.0020
8	3110K	0.0000	0.0007	0.0010	0.0011	0.0014	0.0016	0.0020
9	3079K	0.0000	0.0010	0.0011	0.0011	0.0014	0.0016	0.0018
10	3081K	0.0000	0.0007	0.0009	0.0011	0.0013	0.0016	0.0017
11	3123K	0.0000	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018
12	3095K	0.0000	0.0006	0.0009	0.0011	0.0014	0.0017	0.0019
13	3092K	0.0000	0.0011	0.0012	0.0013	0.0014	0.0015	0.0017
14	3088K	0.0000	0.0009	0.0009	0.0011	0.0014	0.0016	0.0019
15	3116K	0.0000	0.0007	0.0009	0.0011	0.0014	0.0016	0.0018
16	3095K	0.0000	0.0008	0.0009	0.0011	0.0013	0.0014	0.0018
17	3095K	0.0000	0.0008	0.0009	0.0012	0.0013	0.0015	0.0018
18	3058K	0.0000	0.0008	0.0009	0.0012	0.0014	0.0015	0.0018
19	3110K	0.0000	0.0010	0.0012	0.0013	0.0014	0.0015	0.0017
20	3073K	0.0000	0.0009	0.0010	0.0012	0.0014	0.0015	0.0018
21	3042K	0.0000	0.0009	0.0012	0.0013	0.0014	0.0014	0.0018
22	3092K	0.0000	0.0008	0.0010	0.0011	0.0013	0.0013	0.0016
23	3063K	0.0000	0.0008	0.0009	0.0011	0.0013	0.0013	0.0017
24	3153K	0.0000	0.0009	0.0012	0.0011	0.0013	0.0014	0.0017
25	3110K	0.0000	0.0009	0.0010	0.0011	0.0014	0.0014	0.0017

Forward Voltage [V] data for tested units
$T_s = T_{air} = 85°C$, $I_f = 120mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3065K	3.062	3.089	3.096	3.102	3.102	3.110	3.111
2	3062K	3.057	3.088	3.095	3.101	3.103	3.110	3.111
3	3101K	3.070	3.130	3.141	3.145	3.155	3.165	3.166
4	3099K	3.064	3.093	3.100	3.099	3.102	3.111	3.109
5	3094K	3.055	3.085	3.089	3.095	3.097	3.104	3.103
6	3065K	3.070	3.113	3.119	3.123	3.128	3.140	3.138
7	3096K	3.057	3.094	3.103	3.102	3.104	3.117	3.115
8	3110K	3.049	3.071	3.079	3.083	3.084	3.089	3.095
9	3079K	3.059	3.082	3.087	3.093	3.092	3.104	3.099
10	3081K	3.056	3.084	3.087	3.094	3.095	3.098	3.103
11	3123K	3.055	3.076	3.084	3.086	3.089	3.094	3.097
12	3095K	3.058	3.091	3.097	3.103	3.104	3.109	3.112
13	3092K	3.051	3.071	3.074	3.080	3.082	3.090	3.089
14	3088K	3.062	3.087	3.093	3.095	3.099	3.105	3.106
15	3116K	3.057	3.070	3.074	3.081	3.081	3.085	3.086
16	3095K	3.065	3.103	3.108	3.113	3.116	3.116	3.126
17	3095K	3.045	3.069	3.076	3.079	3.084	3.081	3.087
18	3058K	3.055	3.081	3.084	3.090	3.091	3.092	3.097
19	3110K	3.062	3.084	3.091	3.097	3.098	3.100	3.103
20	3073K	3.060	3.087	3.093	3.090	3.097	3.102	3.103
21	3042K	3.073	3.131	3.140	3.151	3.152	3.160	3.163
22	3092K	3.054	3.075	3.086	3.085	3.086	3.090	3.094
23	3063K	3.060	3.089	3.097	3.103	3.102	3.108	3.112
24	3153K	3.058	3.088	3.097	3.100	3.102	3.103	3.108
25	3110K	3.057	3.086	3.099	3.105	3.105	3.104	3.109

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 105°C$, $I_f = 120mA$; $T_s \geq 103°C$ and $T_{air} \geq 100°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3075K	42.560	42.407	42.088	42.158	41.756	41.499	41.241
2	3098K	42.638	42.767	42.457	42.485	42.011	41.593	41.213
3	3084K	42.866	42.893	42.428	42.840	42.515	42.318	42.130
4	3095K	42.505	42.391	42.141	42.258	41.799	41.447	41.001
5	3113K	42.519	42.340	41.972	42.025	41.649	41.323	41.006
6	3063K	42.648	42.482	42.232	42.168	41.735	41.418	41.095
7	3089K	42.447	42.194	41.941	41.989	41.575	41.313	41.145
8	3079K	42.748	42.610	42.130	42.154	41.654	41.347	40.943
9	3080K	42.604	42.630	42.178	42.346	41.890	41.336	40.948
10	3093K	42.731	42.785	42.330	42.461	42.111	41.884	41.582
11	3069K	43.056	43.051	42.759	42.861	42.460	42.236	42.002
12	3076K	42.567	42.764	42.498	42.620	42.266	41.847	41.123
13	3108K	43.340	43.272	42.850	42.976	42.569	42.319	42.186
14	3085K	42.709	42.762	42.108	42.153	41.861	41.644	41.134
15	3123K	42.960	42.930	42.352	42.341	41.944	41.640	41.149
16	3093K	42.601	42.670	42.121	42.118	41.777	41.415	40.799
17	3067K	42.318	42.048	41.482	41.462	41.087	40.873	40.609
18	3120K	42.817	43.091	42.600	42.552	42.202	41.782	41.132
19	3086K	42.410	42.613	42.280	42.336	42.007	41.736	41.435
20	3107K	42.828	42.566	42.109	42.025	41.665	41.416	41.147
21	3030K	42.870	42.922	42.577	42.582	42.211	41.955	41.782
22	3071K	42.580	42.748	42.319	42.370	41.942	41.788	41.535
23	3097K	42.967	43.090	42.515	42.476	42.170	41.921	41.647
24	3091K	42.951	43.160	42.636	42.570	42.316	41.966	41.608
25	3058K	42.352	42.503	42.084	42.085	41.763	41.463	41.090

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 105°C$, $I_f = 120mA$; $T_s \geq 103°C$ and $T_{air} \geq 100°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3075K	1.000	0.996	0.989	0.991	0.981	0.975	0.969
2	3098K	1.000	1.003	0.996	0.996	0.985	0.975	0.967
3	3084K	1.000	1.001	0.990	0.999	0.992	0.987	0.983
4	3095K	1.000	0.997	0.991	0.994	0.983	0.975	0.965
5	3113K	1.000	0.996	0.987	0.988	0.980	0.972	0.964
6	3063K	1.000	0.996	0.990	0.989	0.979	0.971	0.964
7	3089K	1.000	0.994	0.988	0.989	0.979	0.973	0.969
8	3079K	1.000	0.997	0.986	0.986	0.974	0.967	0.958
9	3080K	1.000	1.001	0.990	0.994	0.983	0.970	0.961
10	3093K	1.000	1.001	0.991	0.994	0.985	0.980	0.973
11	3069K	1.000	1.000	0.993	0.995	0.986	0.981	0.976
12	3076K	1.000	1.005	0.998	1.001	0.993	0.983	0.966
13	3108K	1.000	0.998	0.989	0.992	0.982	0.976	0.973
14	3085K	1.000	1.001	0.986	0.987	0.980	0.975	0.963
15	3123K	1.000	0.999	0.986	0.986	0.976	0.969	0.958
16	3093K	1.000	1.002	0.989	0.989	0.981	0.972	0.958
17	3067K	1.000	0.994	0.980	0.980	0.971	0.966	0.960
18	3120K	1.000	1.006	0.995	0.994	0.986	0.976	0.961
19	3086K	1.000	1.005	0.997	0.998	0.991	0.984	0.977
20	3107K	1.000	0.994	0.983	0.981	0.973	0.967	0.961
21	3030K	1.000	1.001	0.993	0.993	0.985	0.979	0.975
22	3071K	1.000	1.004	0.994	0.995	0.985	0.981	0.975
23	3097K	1.000	1.003	0.989	0.989	0.981	0.976	0.969
24	3091K	1.000	1.005	0.993	0.991	0.985	0.977	0.969
25	3058K	1.000	1.004	0.994	0.994	0.986	0.979	0.970

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 120mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3075K	0.2478	0.2469	0.2469	0.2468	0.2470	0.2469	0.2470
2	3098K	0.2468	0.2462	0.2463	0.2462	0.2463	0.2463	0.2462
3	3084K	0.2472	0.2465	0.2466	0.2466	0.2468	0.2468	0.2468
4	3095K	0.2472	0.2463	0.2463	0.2463	0.2464	0.2463	0.2462
5	3113K	0.2462	0.2454	0.2453	0.2453	0.2454	0.2453	0.2453
6	3063K	0.2483	0.2475	0.2474	0.2474	0.2476	0.2475	0.2475
7	3089K	0.2475	0.2465	0.2465	0.2465	0.2465	0.2465	0.2467
8	3079K	0.2476	0.2469	0.2467	0.2467	0.2467	0.2466	0.2467
9	3080K	0.2473	0.2465	0.2466	0.2467	0.2467	0.2465	0.2466
10	3093K	0.2473	0.2466	0.2465	0.2466	0.2467	0.2468	0.2468
11	3069K	0.2480	0.2473	0.2473	0.2474	0.2475	0.2476	0.2476
12	3076K	0.2475	0.2469	0.2470	0.2472	0.2472	0.2472	0.2470
13	3108K	0.2466	0.2459	0.2458	0.2459	0.2461	0.2461	0.2461
14	3085K	0.2477	0.2470	0.2470	0.2471	0.2472	0.2473	0.2473
15	3123K	0.2463	0.2455	0.2454	0.2455	0.2456	0.2455	0.2454
16	3093K	0.2477	0.2470	0.2470	0.2471	0.2472	0.2472	0.2470
17	3067K	0.2485	0.2475	0.2474	0.2475	0.2475	0.2476	0.2476
18	3120K	0.2460	0.2455	0.2455	0.2457	0.2458	0.2457	0.2456
19	3086K	0.2477	0.2471	0.2473	0.2474	0.2475	0.2475	0.2476
20	3107K	0.2467	0.2456	0.2456	0.2455	0.2455	0.2455	0.2456
21	3030K	0.2489	0.2482	0.2484	0.2485	0.2485	0.2486	0.2486
22	3071K	0.2475	0.2469	0.2471	0.2470	0.2472	0.2472	0.2473
23	3097K	0.2468	0.2463	0.2463	0.2463	0.2466	0.2464	0.2463
24	3091K	0.2474	0.2469	0.2470	0.2470	0.2471	0.2472	0.2471
25	3058K	0.2488	0.2482	0.2483	0.2483	0.2484	0.2485	0.2485

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 105°C, I_f = 120mA; $T_s \geq$ 103°C and $T_{air} \geq$ 100°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3075K	0.5207	0.5212	0.5216	0.5219	0.5222	0.5224	0.5227
2	3098K	0.5209	0.5215	0.5219	0.5222	0.5224	0.5226	0.5228
3	3084K	0.5216	0.5222	0.5221	0.5227	0.5230	0.5233	0.5237
4	3095K	0.5199	0.5204	0.5207	0.5211	0.5212	0.5215	0.5217
5	3113K	0.5209	0.5213	0.5217	0.5219	0.5222	0.5224	0.5227
6	3063K	0.5207	0.5212	0.5215	0.5218	0.5220	0.5222	0.5224
7	3089K	0.5195	0.5199	0.5201	0.5204	0.5207	0.5209	0.5212
8	3079K	0.5208	0.5213	0.5216	0.5218	0.5220	0.5222	0.5224
9	3080K	0.5217	0.5224	0.5227	0.5230	0.5232	0.5233	0.5235
10	3093K	0.5198	0.5205	0.5208	0.5211	0.5214	0.5217	0.5219
11	3069K	0.5208	0.5213	0.5217	0.5220	0.5223	0.5225	0.5228
12	3076K	0.5214	0.5220	0.5224	0.5227	0.5230	0.5230	0.5230
13	3108K	0.5206	0.5211	0.5215	0.5218	0.5219	0.5223	0.5226
14	3085K	0.5194	0.5200	0.5203	0.5205	0.5208	0.5211	0.5212
15	3123K	0.5195	0.5200	0.5203	0.5207	0.5208	0.5211	0.5211
16	3093K	0.5182	0.5189	0.5192	0.5196	0.5198	0.5200	0.5200
17	3067K	0.5191	0.5194	0.5197	0.5201	0.5203	0.5205	0.5208
18	3120K	0.5207	0.5216	0.5219	0.5222	0.5225	0.5226	0.5228
19	3086K	0.5194	0.5201	0.5205	0.5208	0.5210	0.5212	0.5214
20	3107K	0.5203	0.5208	0.5211	0.5213	0.5216	0.5218	0.5220
21	3030K	0.5231	0.5238	0.5241	0.5244	0.5247	0.5249	0.5252
22	3071K	0.5221	0.5228	0.5231	0.5234	0.5236	0.5238	0.5241
23	3097K	0.5209	0.5215	0.5218	0.5222	0.5224	0.5227	0.5228
24	3091K	0.5197	0.5205	0.5208	0.5211	0.5214	0.5216	0.5218
25	3058K	0.5195	0.5203	0.5206	0.5209	0.5212	0.5214	0.5216

Delta u'v' data for tested units
$T_s = T_{air} = 105°C$, $I_f = 120mA$; $T_s \geq 103°C$ and $T_{air} \geq 100°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3075K	0.0000	0.0010	0.0013	0.0016	0.0017	0.0019	0.0022
2	3098K	0.0000	0.0008	0.0011	0.0014	0.0016	0.0018	0.0020
3	3084K	0.0000	0.0009	0.0008	0.0013	0.0015	0.0017	0.0021
4	3095K	0.0000	0.0010	0.0012	0.0015	0.0015	0.0018	0.0021
5	3113K	0.0000	0.0009	0.0012	0.0013	0.0015	0.0017	0.0020
6	3063K	0.0000	0.0009	0.0012	0.0014	0.0015	0.0017	0.0019
7	3089K	0.0000	0.0011	0.0012	0.0013	0.0016	0.0017	0.0019
8	3079K	0.0000	0.0009	0.0012	0.0013	0.0015	0.0017	0.0018
9	3080K	0.0000	0.0011	0.0012	0.0014	0.0016	0.0018	0.0019
10	3093K	0.0000	0.0010	0.0013	0.0015	0.0017	0.0020	0.0022
11	3069K	0.0000	0.0009	0.0011	0.0013	0.0016	0.0017	0.0020
12	3076K	0.0000	0.0008	0.0011	0.0013	0.0016	0.0016	0.0017
13	3108K	0.0000	0.0009	0.0012	0.0014	0.0014	0.0018	0.0021
14	3085K	0.0000	0.0009	0.0011	0.0013	0.0015	0.0017	0.0018
15	3123K	0.0000	0.0009	0.0012	0.0014	0.0015	0.0018	0.0018
16	3093K	0.0000	0.0010	0.0012	0.0015	0.0017	0.0019	0.0019
17	3067K	0.0000	0.0010	0.0013	0.0014	0.0016	0.0017	0.0019
18	3120K	0.0000	0.0010	0.0013	0.0015	0.0018	0.0019	0.0021
19	3086K	0.0000	0.0009	0.0012	0.0014	0.0016	0.0018	0.0020
20	3107K	0.0000	0.0012	0.0014	0.0016	0.0018	0.0019	0.0020
21	3030K	0.0000	0.0010	0.0011	0.0014	0.0016	0.0018	0.0021
22	3071K	0.0000	0.0009	0.0011	0.0014	0.0015	0.0017	0.0020
23	3097K	0.0000	0.0008	0.0010	0.0014	0.0015	0.0018	0.0020
24	3091K	0.0000	0.0009	0.0012	0.0015	0.0017	0.0019	0.0021
25	3058K	0.0000	0.0010	0.0012	0.0015	0.0017	0.0019	0.0021

Forward Voltage [V] data for tested units
$T_s = T_{air} = 105°C$, $I_f = 120mA$; $T_s \geq 103°C$ and $T_{air} \geq 100°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3075K	3.047	3.068	3.072	3.082	3.077	3.078	3.088
2	3098K	3.061	3.081	3.088	3.090	3.087	3.215	3.099
3	3084K	3.060	3.083	3.088	3.092	3.092	3.100	3.105
4	3095K	3.055	3.092	3.097	3.106	3.106	3.109	3.119
5	3113K	3.060	3.083	3.088	3.092	3.090	3.097	3.102
6	3063K	3.061	3.108	3.117	3.120	3.123	3.133	3.143
7	3089K	3.046	3.070	3.077	3.077	3.077	3.081	3.090
8	3079K	3.046	3.066	3.069	3.075	3.074	3.079	3.084
9	3080K	3.058	3.085	3.092	3.097	3.097	3.097	3.106
10	3093K	3.063	3.096	3.103	3.108	3.106	3.112	3.121
11	3069K	3.043	3.066	3.071	3.074	3.077	3.078	3.084
12	3076K	3.051	3.071	3.080	3.078	3.081	3.082	3.089
13	3108K	3.065	3.107	3.116	3.123	3.122	3.128	3.138
14	3085K	3.055	3.086	3.090	3.096	3.100	3.099	3.108
15	3123K	3.050	3.088	3.092	3.103	3.100	3.108	3.115
16	3093K	3.058	3.093	3.098	3.104	3.103	3.111	3.114
17	3067K	3.063	3.088	3.097	3.101	3.099	3.108	3.113
18	3120K	3.057	3.081	3.087	3.094	3.093	3.098	3.103
19	3086K	3.063	3.089	3.095	3.099	3.100	3.101	3.108
20	3107K	3.056	3.085	3.091	3.098	3.102	3.103	3.112
21	3030K	3.063	3.091	3.095	3.104	3.105	3.109	3.115
22	3071K	3.069	3.111	3.118	3.124	3.122	3.134	3.137
23	3097K	3.061	3.086	3.092	3.098	3.100	3.102	3.109
24	3091K	3.046	3.072	3.080	3.086	3.083	3.088	3.095
25	3058K	3.061	3.083	3.091	3.096	3.099	3.101	3.108

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 55°C$, $I_f = 180mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3113K	77.733	78.566	78.173	78.600	78.450	78.448	78.118
2	3096K	77.385	77.871	77.346	77.579	77.484	77.296	76.978
3	3126K	76.709	77.613	77.212	77.604	77.406	77.266	76.932
4	3134K	76.811	77.673	77.147	77.575	77.370	77.157	76.866
5	3150K	78.305	78.850	78.347	78.671	78.455	78.276	78.148
6	3149K	77.632	78.274	77.854	78.201	78.015	77.780	77.562
7	3140K	78.336	78.830	78.286	78.580	78.299	78.048	78.340
8	3100K	77.998	78.445	78.064	78.428	78.260	77.963	77.771
9	3091K	78.655	79.337	79.018	79.431	79.280	78.800	78.767
10	3116K	78.080	79.130	78.750	79.205	79.080	79.100	78.905
11	3090K	77.813	78.198	77.852	78.150	77.965	77.898	77.695
12	3113K	78.059	78.601	78.205	78.603	78.435	78.295	77.925
13	3111K	77.356	77.467	76.918	77.034	76.816	76.661	76.367
14	3146K	77.990	78.682	78.439	78.780	78.690	78.533	78.411
15	3105K	77.516	78.160	77.968	78.289	78.166	77.974	77.712
16	3088K	78.895	79.239	78.855	79.321	78.969	78.817	78.829
17	3117K	79.174	79.617	79.335	79.628	79.308	79.257	79.220
18	3104K	78.545	78.740	78.300	78.472	78.177	77.927	77.973
19	3127K	78.638	79.001	78.469	78.672	78.328	78.072	78.124
20	3105K	77.877	78.127	77.539	77.630	77.310	77.145	77.162
21	3124K	77.844	78.600	78.203	78.452	78.220	77.956	77.774
22	3064K	77.523	77.788	77.159	77.362	77.045	76.650	77.026
23	3092K	77.975	78.315	77.937	78.103	77.822	77.394	77.632
24	3131K	78.896	79.562	79.102	79.350	78.937	78.711	78.665
25	3126K	78.639	79.248	78.310	78.903	78.529	78.242	78.195

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 55°C$, $I_f = 180mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3113K	1.000	1.011	1.006	1.011	1.009	1.009	1.005
2	3096K	1.000	1.006	0.999	1.002	1.001	0.999	0.995
3	3126K	1.000	1.012	1.007	1.012	1.009	1.007	1.003
4	3134K	1.000	1.011	1.004	1.010	1.007	1.005	1.001
5	3150K	1.000	1.007	1.001	1.005	1.002	1.000	0.998
6	3149K	1.000	1.008	1.003	1.007	1.005	1.002	0.999
7	3140K	1.000	1.006	0.999	1.003	1.000	0.996	1.000
8	3100K	1.000	1.006	1.001	1.006	1.003	1.000	0.997
9	3091K	1.000	1.009	1.005	1.010	1.008	1.002	1.001
10	3116K	1.000	1.013	1.009	1.014	1.013	1.013	1.011
11	3090K	1.000	1.005	1.000	1.004	1.002	1.001	0.998
12	3113K	1.000	1.007	1.002	1.007	1.005	1.003	0.998
13	3111K	1.000	1.001	0.994	0.996	0.993	0.991	0.987
14	3146K	1.000	1.009	1.006	1.010	1.009	1.007	1.005
15	3105K	1.000	1.008	1.006	1.010	1.008	1.006	1.003
16	3088K	1.000	1.004	0.999	1.005	1.001	0.999	0.999
17	3117K	1.000	1.006	1.002	1.006	1.002	1.001	1.001
18	3104K	1.000	1.002	0.997	0.999	0.995	0.992	0.993
19	3127K	1.000	1.005	0.998	1.000	0.996	0.993	0.993
20	3105K	1.000	1.003	0.996	0.997	0.993	0.991	0.991
21	3124K	1.000	1.010	1.005	1.008	1.005	1.001	0.999
22	3064K	1.000	1.003	0.995	0.998	0.994	0.989	0.994
23	3092K	1.000	1.004	1.000	1.002	0.998	0.993	0.996
24	3131K	1.000	1.008	1.003	1.006	1.001	0.998	0.997
25	3126K	1.000	1.008	0.996	1.003	0.999	0.995	0.994

CIE 1976 u' data for tested units
$T_s = T_{air} = 55°C$, $I_f = 180mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3113K	0.2458	0.2451	0.2451	0.2450	0.2453	0.2455	0.2457
2	3096K	0.2470	0.2462	0.2461	0.2460	0.2462	0.2464	0.2467
3	3126K	0.2459	0.2452	0.2453	0.2452	0.2455	0.2456	0.2459
4	3134K	0.2456	0.2451	0.2450	0.2449	0.2451	0.2452	0.2454
5	3150K	0.2447	0.2440	0.2440	0.2439	0.2441	0.2442	0.2445
6	3149K	0.2451	0.2444	0.2444	0.2442	0.2445	0.2446	0.2448
7	3140K	0.2451	0.2444	0.2443	0.2441	0.2444	0.2444	0.2446
8	3100K	0.2465	0.2457	0.2457	0.2456	0.2458	0.2459	0.2462
9	3091K	0.2464	0.2456	0.2455	0.2455	0.2458	0.2459	0.2461
10	3116K	0.2455	0.2451	0.2451	0.2450	0.2452	0.2453	0.2454
11	3090K	0.2466	0.2459	0.2458	0.2456	0.2458	0.2460	0.2461
12	3113K	0.2461	0.2453	0.2452	0.2449	0.2453	0.2453	0.2454
13	3111K	0.2463	0.2455	0.2453	0.2451	0.2452	0.2452	0.2454
14	3146K	0.2452	0.2445	0.2445	0.2444	0.2446	0.2447	0.2449
15	3105K	0.2464	0.2456	0.2456	0.2455	0.2457	0.2457	0.2458
16	3088K	0.2468	0.2462	0.2460	0.2460	0.2462	0.2462	0.2465
17	3117K	0.2459	0.2453	0.2453	0.2452	0.2454	0.2455	0.2457
18	3104K	0.2465	0.2457	0.2457	0.2454	0.2456	0.2456	0.2458
19	3127K	0.2452	0.2446	0.2444	0.2442	0.2444	0.2444	0.2446
20	3105K	0.2466	0.2458	0.2456	0.2454	0.2455	0.2455	0.2457
21	3124K	0.2460	0.2454	0.2454	0.2451	0.2453	0.2454	0.2455
22	3064K	0.2482	0.2475	0.2473	0.2470	0.2472	0.2473	0.2473
23	3092K	0.2471	0.2465	0.2465	0.2463	0.2465	0.2464	0.2467
24	3131K	0.2454	0.2447	0.2448	0.2447	0.2449	0.2450	0.2452
25	3126K	0.2458	0.2451	0.2458	0.2450	0.2452	0.2453	0.2456

CIE 1976 v' data for tested units
$T_s = T_{air} = 55°C$, $I_f = 180mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3113K	0.5226	0.5230	0.5232	0.5235	0.5238	0.5243	0.5249
2	3096K	0.5206	0.5209	0.5211	0.5213	0.5218	0.5222	0.5226
3	3126K	0.5201	0.5207	0.5210	0.5213	0.5216	0.5221	0.5226
4	3134K	0.5203	0.5207	0.5209	0.5212	0.5216	0.5220	0.5224
5	3150K	0.5214	0.5217	0.5219	0.5222	0.5225	0.5229	0.5234
6	3149K	0.5199	0.5203	0.5205	0.5208	0.5211	0.5215	0.5221
7	3140K	0.5213	0.5216	0.5218	0.5220	0.5224	0.5228	0.5233
8	3100K	0.5216	0.5220	0.5222	0.5225	0.5228	0.5233	0.5238
9	3091K	0.5234	0.5237	0.5239	0.5242	0.5245	0.5249	0.5253
10	3116K	0.5231	0.5235	0.5237	0.5238	0.5241	0.5244	0.5247
11	3090K	0.5229	0.5231	0.5232	0.5233	0.5236	0.5240	0.5244
12	3113K	0.5215	0.5217	0.5219	0.5218	0.5223	0.5226	0.5229
13	3111K	0.5208	0.5209	0.5209	0.5211	0.5213	0.5217	0.5220
14	3146K	0.5200	0.5202	0.5203	0.5205	0.5208	0.5211	0.5215
15	3105K	0.5215	0.5217	0.5219	0.5221	0.5223	0.5226	0.5229
16	3088K	0.5223	0.5226	0.5226	0.5229	0.5232	0.5234	0.5239
17	3117K	0.5214	0.5217	0.5218	0.5220	0.5223	0.5226	0.5229
18	3104K	0.5214	0.5215	0.5216	0.5217	0.5220	0.5223	0.5226
19	3127K	0.5227	0.5229	0.5230	0.5232	0.5234	0.5237	0.5241
20	3105K	0.5208	0.5210	0.5210	0.5212	0.5214	0.5217	0.5221
21	3124K	0.5202	0.5206	0.5208	0.5209	0.5212	0.5215	0.5219
22	3064K	0.5208	0.5211	0.5212	0.5211	0.5215	0.5218	0.5219
23	3092K	0.5206	0.5208	0.5209	0.5210	0.5213	0.5215	0.5220
24	3131K	0.5211	0.5215	0.5218	0.5219	0.5223	0.5227	0.5231
25	3126K	0.5205	0.5209	0.5220	0.5214	0.5217	0.5221	0.5226

Delta u'v' data for tested units

$T_s = T_{air} = 55°C$, $I_f = 180mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3113K	0.0000	0.0008	0.0009	0.0012	0.0013	0.0017	0.0023
2	3096K	0.0000	0.0009	0.0010	0.0012	0.0014	0.0017	0.0020
3	3126K	0.0000	0.0009	0.0011	0.0014	0.0016	0.0020	0.0025
4	3134K	0.0000	0.0006	0.0008	0.0011	0.0014	0.0017	0.0021
5	3150K	0.0000	0.0008	0.0009	0.0011	0.0013	0.0016	0.0020
6	3149K	0.0000	0.0008	0.0009	0.0013	0.0013	0.0017	0.0022
7	3140K	0.0000	0.0008	0.0009	0.0012	0.0013	0.0017	0.0021
8	3100K	0.0000	0.0009	0.0010	0.0013	0.0014	0.0018	0.0022
9	3091K	0.0000	0.0009	0.0010	0.0012	0.0013	0.0016	0.0019
10	3116K	0.0000	0.0006	0.0007	0.0009	0.0010	0.0013	0.0016
11	3090K	0.0000	0.0007	0.0009	0.0011	0.0011	0.0013	0.0016
12	3113K	0.0000	0.0008	0.0010	0.0012	0.0011	0.0014	0.0016
13	3111K	0.0000	0.0008	0.0010	0.0012	0.0012	0.0014	0.0015
14	3146K	0.0000	0.0007	0.0008	0.0009	0.0010	0.0012	0.0015
15	3105K	0.0000	0.0008	0.0009	0.0011	0.0011	0.0013	0.0015
16	3088K	0.0000	0.0007	0.0009	0.0010	0.0011	0.0013	0.0016
17	3117K	0.0000	0.0007	0.0007	0.0009	0.0010	0.0013	0.0015
18	3104K	0.0000	0.0008	0.0008	0.0011	0.0011	0.0013	0.0014
19	3127K	0.0000	0.0006	0.0009	0.0011	0.0011	0.0013	0.0015
20	3105K	0.0000	0.0008	0.0010	0.0013	0.0013	0.0014	0.0016
21	3124K	0.0000	0.0007	0.0008	0.0011	0.0012	0.0014	0.0018
22	3064K	0.0000	0.0008	0.0010	0.0012	0.0012	0.0013	0.0014
23	3092K	0.0000	0.0006	0.0007	0.0009	0.0009	0.0011	0.0015
24	3131K	0.0000	0.0008	0.0009	0.0011	0.0013	0.0016	0.0020
25	3126K	0.0000	0.0008	0.0015	0.0012	0.0013	0.0017	0.0021

Forward Voltage [V] data for tested units

$T_s = T_{air} = 55°C$, $I_f = 180mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3113K	3.404	3.444	3.454	3.456	3.467	3.465	3.475
2	3096K	3.432	3.499	3.511	3.516	3.527	3.530	3.540
3	3126K	3.437	3.483	3.493	3.501	3.505	3.509	3.517
4	3134K	3.437	3.502	3.513	3.519	3.524	3.531	3.536
5	3150K	3.444	3.528	3.540	3.550	3.557	3.564	3.571
6	3149K	3.441	3.494	3.502	3.509	3.513	3.520	3.528
7	3140K	3.415	3.468	3.479	3.481	3.488	3.488	3.500
8	3100K	3.425	3.476	3.488	3.494	3.500	3.504	3.511
9	3091K	3.413	3.471	3.478	3.969	3.487	3.486	3.499
10	3116K	3.432	3.489	3.499	3.503	3.510	3.512	3.520
11	3090K	3.424	3.464	3.474	3.478	3.486	3.486	3.495
12	3113K	3.418	3.472	3.485	3.489	3.496	3.498	3.504
13	3111K	3.426	3.478	3.488	3.494	3.500	3.503	3.511
14	3146K	3.403	3.442	3.448	3.455	3.457	3.460	3.467
15	3105K	3.436	3.499	3.510	3.516	3.521	3.529	3.535
16	3088K	3.432	3.489	3.501	3.509	3.513	3.514	3.523
17	3117K	3.400	3.438	3.440	3.446	3.447	3.456	3.461
18	3104K	3.438	3.502	3.517	3.522	3.529	3.536	3.542
19	3127K	3.417	3.458	3.466	3.468	3.472	3.477	3.483
20	3105K	3.439	3.494	3.502	3.507	3.513	3.516	3.527
21	3124K	3.439	3.503	3.515	3.518	3.527	3.530	3.537
22	3064K	3.442	3.503	3.509	3.516	3.521	3.526	3.545
23	3092K	3.453	3.524	3.537	3.543	3.550	3.552	3.564
24	3131K	3.441	3.507	3.518	3.519	3.532	3.530	3.545
25	3126K	3.409	3.456	3.465	3.468	3.474	3.479	3.489

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 85°C$, $I_f = 180mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3118K	77.460	77.598	76.880	77.158	76.580	75.901	75.545
2	3119K	77.474	77.626	77.066	77.287	76.746	76.067	75.453
3	3127K	78.147	78.444	77.920	77.891	77.060	76.194	75.442
4	3107K	78.207	78.632	77.975	78.100	77.375	76.468	75.901
5	3138K	78.166	78.542	77.904	78.048	77.575	76.822	76.059
6	3129K	77.405	77.555	76.749	76.762	76.163	75.607	75.317
7	3135K	77.030	77.257	76.586	76.731	76.301	75.766	75.254
8	3057K	75.815	76.300	75.788	76.032	75.659	75.260	75.106
9	3092K	77.113	77.815	77.335	77.532	77.043	76.559	76.046
10	3081K	77.669	78.182	77.792	77.892	77.364	76.735	76.184
11	3111K	77.635	78.230	77.662	78.136	77.841	77.177	77.048
12	3143K	77.268	78.210	77.711	77.921	77.579	77.056	76.803
13	3128K	79.069	79.547	79.062	79.266	78.876	78.272	77.851
14	3082K	77.755	78.239	77.762	77.937	77.808	77.216	77.044
15	3078K	77.003	77.203	76.865	76.615	75.999	75.152	74.953
16	3137K	77.686	77.943	77.506	77.522	76.954	76.304	75.767
17	3096K	78.464	78.188	77.700	77.634	77.146	76.639	76.530
18	3118K	77.622	78.020	77.596	77.822	77.332	76.981	76.954
19	3107K	77.502	78.076	77.846	77.924	77.496	77.163	76.979
20	3111K	77.404	77.767	77.480	77.695	77.190	76.907	76.779
21	3084K	77.093	76.690	76.302	76.339	75.702	75.227	74.739
22	3111K	78.492	78.808	78.597	78.867	78.353	77.987	77.677
23	3097K	77.361	77.474	77.273	77.471	76.917	76.600	76.516
24	3073K	78.169	78.144	77.740	77.779	77.119	76.510	76.141
25	3134K	76.944	77.238	76.895	76.685	75.734	75.023	74.510

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 85°C$, $I_f = 180mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3118K	1.000	1.002	0.993	0.996	0.989	0.980	0.975
2	3119K	1.000	1.002	0.995	0.998	0.991	0.982	0.974
3	3127K	1.000	1.004	0.997	0.997	0.986	0.975	0.965
4	3107K	1.000	1.005	0.997	0.999	0.989	0.978	0.971
5	3138K	1.000	1.005	0.997	0.998	0.992	0.983	0.973
6	3129K	1.000	1.002	0.992	0.992	0.984	0.977	0.973
7	3135K	1.000	1.003	0.994	0.996	0.991	0.984	0.977
8	3057K	1.000	1.006	1.000	1.003	0.998	0.993	0.991
9	3092K	1.000	1.009	1.003	1.005	0.999	0.993	0.986
10	3081K	1.000	1.007	1.002	1.003	0.996	0.988	0.981
11	3111K	1.000	1.008	1.000	1.006	1.003	0.994	0.992
12	3143K	1.000	1.012	1.006	1.008	1.004	0.997	0.994
13	3128K	1.000	1.006	1.000	1.002	0.998	0.990	0.985
14	3082K	1.000	1.006	1.000	1.002	1.001	0.993	0.991
15	3078K	1.000	1.003	0.998	0.995	0.987	0.976	0.973
16	3137K	1.000	1.003	0.998	0.998	0.991	0.982	0.975
17	3096K	1.000	0.996	0.990	0.989	0.983	0.977	0.975
18	3118K	1.000	1.005	1.000	1.003	0.996	0.992	0.991
19	3107K	1.000	1.007	1.004	1.005	1.000	0.996	0.993
20	3111K	1.000	1.005	1.001	1.004	0.997	0.994	0.992
21	3084K	1.000	0.995	0.990	0.990	0.982	0.976	0.969
22	3111K	1.000	1.004	1.001	1.005	0.998	0.994	0.990
23	3097K	1.000	1.001	0.999	1.001	0.994	0.990	0.989
24	3073K	1.000	1.000	0.995	0.995	0.987	0.979	0.974
25	3134K	1.000	1.004	0.999	0.997	0.984	0.975	0.968

CIE 1976 u' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 180mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3118K	0.2459	0.2448	0.2448	0.2449	0.2451	0.2453	0.2453
2	3119K	0.2462	0.2451	0.2451	0.2453	0.2455	0.2458	0.2458
3	3127K	0.2458	0.2449	0.2450	0.2452	0.2453	0.2455	0.2454
4	3107K	0.2462	0.2453	0.2453	0.2456	0.2457	0.2460	0.2460
5	3138K	0.2453	0.2444	0.2443	0.2444	0.2447	0.2449	0.2448
6	3129K	0.2455	0.2444	0.2440	0.2442	0.2443	0.2444	0.2444
7	3135K	0.2458	0.2448	0.2445	0.2448	0.2449	0.2450	0.2449
8	3057K	0.2485	0.2475	0.2475	0.2477	0.2478	0.2479	0.2479
9	3092K	0.2467	0.2459	0.2458	0.2459	0.2463	0.2464	0.2463
10	3081K	0.2475	0.2466	0.2466	0.2466	0.2469	0.2470	0.2469
11	3111K	0.2460	0.2451	0.2449	0.2451	0.2452	0.2455	0.2454
12	3143K	0.2455	0.2446	0.2447	0.2448	0.2450	0.2451	0.2450
13	3128K	0.2452	0.2443	0.2443	0.2444	0.2446	0.2448	0.2447
14	3082K	0.2473	0.2466	0.2466	0.2468	0.2469	0.2470	0.2469
15	3078K	0.2475	0.2467	0.2467	0.2467	0.2469	0.2468	0.2467
16	3137K	0.2458	0.2449	0.2450	0.2450	0.2452	0.2453	0.2453
17	3096K	0.2468	0.2458	0.2458	0.2457	0.2459	0.2460	0.2460
18	3118K	0.2464	0.2458	0.2457	0.2458	0.2460	0.2461	0.2462
19	3107K	0.2464	0.2457	0.2458	0.2458	0.2459	0.2462	0.2461
20	3111K	0.2462	0.2456	0.2456	0.2457	0.2459	0.2461	0.2460
21	3084K	0.2475	0.2469	0.2467	0.2468	0.2469	0.2470	0.2469
22	3111K	0.2462	0.2457	0.2457	0.2457	0.2460	0.2462	0.2462
23	3097K	0.2467	0.2459	0.2459	0.2460	0.2461	0.2463	0.2463
24	3073K	0.2471	0.2463	0.2462	0.2464	0.2466	0.2469	0.2469
25	3134K	0.2455	0.2448	0.2448	0.2449	0.2450	0.2452	0.2452

CIE 1976 v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 180mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3118K	0.5212	0.5222	0.5226	0.5232	0.5236	0.5240	0.5247
2	3119K	0.5202	0.5211	0.5216	0.5221	0.5226	0.5230	0.5235
3	3127K	0.5204	0.5213	0.5218	0.5223	0.5226	0.5229	0.5233
4	3107K	0.5220	0.5230	0.5235	0.5241	0.5245	0.5248	0.5252
5	3138K	0.5207	0.5217	0.5221	0.5226	0.5230	0.5233	0.5238
6	3129K	0.5214	0.5219	0.5219	0.5224	0.5227	0.5229	0.5233
7	3135K	0.5193	0.5198	0.5199	0.5205	0.5208	0.5210	0.5212
8	3057K	0.5205	0.5211	0.5213	0.5219	0.5222	0.5225	0.5229
9	3092K	0.5221	0.5227	0.5230	0.5233	0.5237	0.5239	0.5242
10	3081K	0.5209	0.5214	0.5218	0.5221	0.5224	0.5226	0.5229
11	3111K	0.5219	0.5225	0.5227	0.5232	0.5236	0.5238	0.5242
12	3143K	0.5196	0.5203	0.5207	0.5212	0.5214	0.5216	0.5220
13	3128K	0.5225	0.5231	0.5234	0.5240	0.5243	0.5245	0.5248
14	3082K	0.5214	0.5220	0.5223	0.5228	0.5231	0.5233	0.5237
15	3078K	0.5212	0.5217	0.5221	0.5224	0.5226	0.5228	0.5230
16	3137K	0.5193	0.5199	0.5202	0.5207	0.5210	0.5212	0.5215
17	3096K	0.5212	0.5216	0.5219	0.5223	0.5226	0.5229	0.5233
18	3118K	0.5195	0.5202	0.5205	0.5209	0.5213	0.5216	0.5219
19	3107K	0.5212	0.5218	0.5222	0.5225	0.5229	0.5231	0.5235
20	3111K	0.5211	0.5219	0.5221	0.5227	0.5229	0.5232	0.5236
21	3084K	0.5203	0.5212	0.5213	0.5219	0.5221	0.5223	0.5226
22	3111K	0.5212	0.5221	0.5224	0.5228	0.5232	0.5235	0.5238
23	3097K	0.5215	0.5220	0.5224	0.5228	0.5230	0.5234	0.5238
24	3073K	0.5232	0.5241	0.5246	0.5251	0.5255	0.5258	0.5263
25	3134K	0.5206	0.5216	0.5220	0.5225	0.5228	0.5232	0.5237

Delta u'v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 180mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3118K	0.0000	0.0015	0.0018	0.0022	0.0025	0.0029	0.0036
2	3119K	0.0000	0.0014	0.0018	0.0021	0.0025	0.0028	0.0033
3	3127K	0.0000	0.0013	0.0016	0.0020	0.0023	0.0025	0.0029
4	3107K	0.0000	0.0013	0.0017	0.0022	0.0025	0.0028	0.0032
5	3138K	0.0000	0.0013	0.0017	0.0021	0.0024	0.0026	0.0031
6	3129K	0.0000	0.0012	0.0016	0.0016	0.0018	0.0019	0.0022
7	3135K	0.0000	0.0011	0.0014	0.0016	0.0017	0.0019	0.0021
8	3057K	0.0000	0.0012	0.0013	0.0016	0.0018	0.0021	0.0025
9	3092K	0.0000	0.0010	0.0013	0.0014	0.0016	0.0018	0.0021
10	3081K	0.0000	0.0010	0.0013	0.0015	0.0016	0.0018	0.0021
11	3111K	0.0000	0.0011	0.0014	0.0016	0.0019	0.0020	0.0024
12	3143K	0.0000	0.0011	0.0014	0.0017	0.0019	0.0020	0.0025
13	3128K	0.0000	0.0011	0.0013	0.0017	0.0019	0.0020	0.0024
14	3082K	0.0000	0.0009	0.0011	0.0015	0.0017	0.0019	0.0023
15	3078K	0.0000	0.0009	0.0012	0.0014	0.0015	0.0017	0.0020
16	3137K	0.0000	0.0011	0.0012	0.0016	0.0018	0.0020	0.0023
17	3096K	0.0000	0.0011	0.0012	0.0016	0.0017	0.0019	0.0022
18	3118K	0.0000	0.0009	0.0012	0.0015	0.0018	0.0021	0.0024
19	3107K	0.0000	0.0009	0.0012	0.0014	0.0018	0.0019	0.0023
20	3111K	0.0000	0.0010	0.0012	0.0017	0.0018	0.0021	0.0025
21	3084K	0.0000	0.0011	0.0013	0.0017	0.0019	0.0021	0.0024
22	3111K	0.0000	0.0010	0.0013	0.0017	0.0020	0.0023	0.0026
23	3097K	0.0000	0.0009	0.0012	0.0015	0.0016	0.0019	0.0023
24	3073K	0.0000	0.0012	0.0017	0.0020	0.0024	0.0026	0.0031
25	3134K	0.0000	0.0012	0.0016	0.0020	0.0023	0.0026	0.0031

Forward Voltage [V] data for tested units
$T_s = T_{air} = 85°C$, $I_f = 180mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3118K	3.433	3.500	3.515	3.523	3.539	3.540	3.548
2	3119K	3.440	3.500	3.510	3.522	3.532	3.541	3.545
3	3127K	3.437	3.508	3.521	3.528	3.543	3.547	3.553
4	3107K	3.429	3.496	3.509	3.518	3.531	3.537	3.538
5	3138K	3.453	3.546	3.559	3.572	3.588	3.594	3.593
6	3129K	3.444	3.508	3.518	3.528	3.540	3.544	3.548
7	3135K	3.439	3.493	3.504	3.510	3.519	3.529	3.529
8	3057K	3.413	3.460	3.464	3.474	3.482	3.487	3.491
9	3092K	3.419	3.464	3.473	3.480	3.489	3.494	3.498
10	3081K	3.434	3.492	3.502	3.509	3.516	3.523	3.529
11	3111K	3.419	3.476	3.480	3.488	3.498	3.507	3.506
12	3143K	3.434	3.492	3.503	3.508	3.521	3.527	3.534
13	3128K	3.427	3.477	3.486	3.499	3.505	3.511	3.513
14	3082K	3.404	3.441	3.445	3.452	3.461	3.465	3.470
15	3078K	3.443	3.510	3.521	3.528	3.539	3.543	3.541
16	3137K	3.416	3.465	3.476	3.485	3.492	3.496	3.500
17	3096K	3.400	3.435	3.442	3.447	3.451	3.458	3.459
18	3118K	3.421	3.487	3.498	3.502	3.515	3.520	3.524
19	3107K	3.433	3.494	3.503	3.512	3.525	3.524	3.531
20	3111K	3.417	3.457	3.469	3.475	3.480	3.484	3.492
21	3084K	3.436	3.493	3.507	3.509	3.521	3.529	3.532
22	3111K	3.417	3.475	3.482	3.488	3.498	3.503	3.503
23	3097K	3.431	3.509	3.518	3.528	3.539	3.546	3.550
24	3073K	3.432	3.500	3.512	3.526	3.535	3.538	3.541
25	3134K	3.437	3.498	3.504	3.514	3.528	3.532	3.535

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 55°C$, $I_f = 240mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3148K	77.856	78.696	78.421	78.687	78.526	78.200	77.812
2	3078K	77.528	78.123	77.762	78.011	77.903	77.691	77.309
3	3134K	77.590	78.186	77.942	78.177	78.035	77.769	77.422
4	3126K	78.181	78.826	78.692	78.900	78.776	78.483	78.093
5	3124K	77.794	78.320	78.045	78.153	77.966	77.666	77.373
6	3161K	77.097	78.086	77.806	77.988	77.926	77.647	77.428
7	3101K	77.991	78.662	78.575	78.698	78.552	78.120	77.842
8	3081K	77.803	78.454	78.421	78.592	78.557	78.344	78.102
9	3102K	78.166	78.507	78.474	78.542	78.427	78.316	77.921
10	3100K	77.336	78.187	78.224	78.412	78.340	78.099	78.011
11	3085K	78.332	78.951	78.915	79.120	79.082	78.898	78.682
12	3133K	78.677	78.937	78.706	78.811	78.710	78.483	78.299
13	3097K	78.082	78.406	78.304	78.434	78.347	78.036	77.837
14	3120K	78.914	79.087	78.879	79.040	78.948	78.616	78.606
15	3084K	78.773	78.948	78.662	78.838	78.707	78.421	78.479
16	3128K	77.164	77.301	76.891	77.033	76.933	76.584	76.587
17	3119K	78.304	78.660	78.495	78.733	78.657	78.284	78.289
18	3099K	77.536	77.812	77.537	77.760	77.669	77.289	77.274
19	3097K	77.944	78.155	77.895	78.166	78.038	77.547	77.556
20	3096K	77.485	77.892	77.525	77.750	77.736	77.289	77.225
21	3136K	78.050	78.441	78.237	78.517	78.484	78.032	78.042
22	3113K	78.391	78.602	78.368	78.618	78.574	78.132	78.215
23	3088K	78.562	78.942	78.649	78.826	78.534	78.211	78.085
24	3123K	78.581	79.056	78.708	78.917	78.653	78.315	78.104
25	3086K	77.141	77.360	76.857	77.094	76.875	76.424	76.428

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 55°C$, $I_f = 240mA$; $T_s \geq 53°C$ and $T_{air} \geq 50°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3148K	1.000	1.011	1.007	1.011	1.009	1.004	0.999
2	3078K	1.000	1.008	1.003	1.006	1.005	1.002	0.997
3	3134K	1.000	1.008	1.005	1.008	1.006	1.002	0.998
4	3126K	1.000	1.008	1.007	1.009	1.008	1.004	0.999
5	3124K	1.000	1.007	1.003	1.005	1.002	0.998	0.995
6	3161K	1.000	1.013	1.009	1.012	1.011	1.007	1.004
7	3101K	1.000	1.009	1.007	1.009	1.007	1.002	0.998
8	3081K	1.000	1.008	1.008	1.010	1.010	1.007	1.004
9	3102K	1.000	1.004	1.004	1.005	1.003	1.002	0.997
10	3100K	1.000	1.011	1.011	1.014	1.013	1.010	1.009
11	3085K	1.000	1.008	1.007	1.010	1.010	1.007	1.004
12	3133K	1.000	1.003	1.000	1.002	1.000	0.998	0.995
13	3097K	1.000	1.004	1.003	1.005	1.003	0.999	0.997
14	3120K	1.000	1.002	1.000	1.002	1.000	0.996	0.996
15	3084K	1.000	1.002	0.999	1.001	0.999	0.996	0.996
16	3128K	1.000	1.002	0.996	0.998	0.997	0.992	0.993
17	3119K	1.000	1.005	1.002	1.005	1.005	1.000	1.000
18	3099K	1.000	1.004	1.000	1.003	1.002	0.997	0.997
19	3097K	1.000	1.003	0.999	1.003	1.001	0.995	0.995
20	3096K	1.000	1.005	1.001	1.003	1.003	0.997	0.997
21	3136K	1.000	1.005	1.002	1.006	1.006	1.000	1.000
22	3113K	1.000	1.003	1.000	1.003	1.002	0.997	0.998
23	3088K	1.000	1.005	1.001	1.003	1.000	0.996	0.994
24	3123K	1.000	1.006	1.002	1.004	1.001	0.997	0.994
25	3086K	1.000	1.003	0.996	0.999	0.997	0.991	0.991

CIE 1976 u' data for tested units
$T_s = T_{air}$ = 55°C, I_f = 240mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3148K	0.2453	0.2452	0.2452	0.2450	0.2452	0.2453	0.2455
2	3078K	0.2471	0.2460	0.2460	0.2457	0.2460	0.2461	0.2463
3	3134K	0.2459	0.2451	0.2451	0.2449	0.2452	0.2453	0.2455
4	3126K	0.2459	0.2452	0.2452	0.2452	0.2454	0.2455	0.2457
5	3124K	0.2461	0.2453	0.2452	0.2450	0.2454	0.2454	0.2457
6	3161K	0.2449	0.2444	0.2443	0.2441	0.2442	0.2441	0.2442
7	3101K	0.2466	0.2460	0.2460	0.2457	0.2459	0.2458	0.2459
8	3081K	0.2472	0.2467	0.2467	0.2465	0.2467	0.2466	0.2469
9	3102K	0.2463	0.2457	0.2456	0.2455	0.2456	0.2456	0.2458
10	3100K	0.2468	0.2462	0.2463	0.2462	0.2464	0.2464	0.2466
11	3085K	0.2469	0.2463	0.2464	0.2463	0.2464	0.2464	0.2466
12	3133K	0.2453	0.2446	0.2445	0.2442	0.2444	0.2444	0.2446
13	3097K	0.2467	0.2459	0.2458	0.2455	0.2459	0.2459	0.2460
14	3120K	0.2457	0.2450	0.2450	0.2450	0.2450	0.2451	0.2453
15	3084K	0.2468	0.2462	0.2461	0.2460	0.2462	0.2462	0.2465
16	3128K	0.2458	0.2450	0.2448	0.2447	0.2448	0.2448	0.2449
17	3119K	0.2457	0.2451	0.2451	0.2450	0.2451	0.2452	0.2453
18	3099K	0.2465	0.2459	0.2458	0.2457	0.2459	0.2459	0.2461
19	3097K	0.2466	0.2460	0.2459	0.2458	0.2460	0.2460	0.2461
20	3096K	0.2467	0.2460	0.2459	0.2458	0.2460	0.2460	0.2461
21	3136K	0.2452	0.2446	0.2447	0.2445	0.2447	0.2447	0.2449
22	3113K	0.2462	0.2456	0.2456	0.2454	0.2456	0.2457	0.2458
23	3088K	0.2468	0.2461	0.2461	0.2459	0.2462	0.2463	0.2466
24	3123K	0.2456	0.2449	0.2449	0.2448	0.2450	0.2451	0.2453
25	3086K	0.2475	0.2468	0.2466	0.2463	0.2466	0.2467	0.2470

CIE 1976 v' data for tested units
$T_s = T_{air}$ = 55°C, I_f = 240mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3148K	0.5196	0.5206	0.5209	0.5211	0.5214	0.5218	0.5223
2	3078K	0.5227	0.5226	0.5227	0.5228	0.5233	0.5236	0.5241
3	3134K	0.5192	0.5195	0.5197	0.5199	0.5203	0.5208	0.5212
4	3126K	0.5204	0.5207	0.5210	0.5213	0.5217	0.5220	0.5225
5	3124K	0.5197	0.5200	0.5202	0.5205	0.5208	0.5213	0.5218
6	3161K	0.5191	0.5196	0.5197	0.5198	0.5201	0.5203	0.5207
7	3101K	0.5213	0.5217	0.5219	0.5220	0.5223	0.5224	0.5227
8	3081K	0.5217	0.5221	0.5222	0.5224	0.5226	0.5229	0.5232
9	3102K	0.5223	0.5225	0.5227	0.5229	0.5231	0.5233	0.5237
10	3100K	0.5206	0.5209	0.5211	0.5212	0.5215	0.5218	0.5221
11	3085K	0.5226	0.5230	0.5232	0.5234	0.5236	0.5239	0.5243
12	3133K	0.5214	0.5215	0.5216	0.5217	0.5220	0.5223	0.5226
13	3097K	0.5214	0.5216	0.5216	0.5218	0.5221	0.5224	0.5228
14	3120K	0.5219	0.5222	0.5223	0.5225	0.5227	0.5230	0.5234
15	3084K	0.5229	0.5231	0.5233	0.5234	0.5237	0.5240	0.5244
16	3128K	0.5206	0.5208	0.5209	0.5210	0.5213	0.5216	0.5219
17	3119K	0.5219	0.5222	0.5223	0.5225	0.5227	0.5230	0.5234
18	3099K	0.5219	0.5222	0.5223	0.5224	0.5227	0.5230	0.5233
19	3097K	0.5216	0.5219	0.5220	0.5222	0.5224	0.5227	0.5230
20	3096K	0.5215	0.5217	0.5219	0.5219	0.5223	0.5225	0.5229
21	3136K	0.5213	0.5216	0.5218	0.5219	0.5222	0.5225	0.5228
22	3113K	0.5210	0.5212	0.5214	0.5215	0.5218	0.5221	0.5224
23	3088K	0.5225	0.5228	0.5230	0.5232	0.5235	0.5240	0.5244
24	3123K	0.5217	0.5221	0.5223	0.5225	0.5229	0.5232	0.5237
25	3086K	0.5201	0.5203	0.5205	0.5206	0.5211	0.5214	0.5219

Delta u'v' data for tested units

$T_s = T_{air}$ = 55°C, I_f = 240mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3148K	0.0000	0.0010	0.0013	0.0015	0.0018	0.0022	0.0027
2	3078K	0.0000	0.0011	0.0011	0.0014	0.0013	0.0013	0.0016
3	3134K	0.0000	0.0009	0.0009	0.0012	0.0013	0.0017	0.0020
4	3126K	0.0000	0.0008	0.0009	0.0011	0.0014	0.0016	0.0021
5	3124K	0.0000	0.0009	0.0010	0.0014	0.0013	0.0017	0.0021
6	3161K	0.0000	0.0007	0.0008	0.0011	0.0012	0.0014	0.0017
7	3101K	0.0000	0.0007	0.0008	0.0011	0.0012	0.0014	0.0016
8	3081K	0.0000	0.0006	0.0007	0.0010	0.0010	0.0013	0.0015
9	3102K	0.0000	0.0006	0.0008	0.0010	0.0011	0.0012	0.0015
10	3100K	0.0000	0.0007	0.0007	0.0008	0.0010	0.0013	0.0015
11	3085K	0.0000	0.0007	0.0008	0.0010	0.0011	0.0014	0.0017
12	3133K	0.0000	0.0007	0.0008	0.0011	0.0011	0.0013	0.0014
13	3097K	0.0000	0.0008	0.0009	0.0013	0.0011	0.0013	0.0016
14	3120K	0.0000	0.0008	0.0008	0.0009	0.0011	0.0013	0.0016
15	3084K	0.0000	0.0006	0.0008	0.0009	0.0010	0.0013	0.0015
16	3128K	0.0000	0.0008	0.0010	0.0012	0.0012	0.0014	0.0016
17	3119K	0.0000	0.0007	0.0007	0.0009	0.0010	0.0012	0.0016
18	3099K	0.0000	0.0007	0.0008	0.0009	0.0010	0.0013	0.0015
19	3097K	0.0000	0.0007	0.0008	0.0010	0.0010	0.0013	0.0015
20	3096K	0.0000	0.0007	0.0009	0.0010	0.0011	0.0012	0.0015
21	3136K	0.0000	0.0007	0.0007	0.0009	0.0010	0.0013	0.0015
22	3113K	0.0000	0.0006	0.0007	0.0009	0.0010	0.0012	0.0015
23	3088K	0.0000	0.0008	0.0009	0.0011	0.0012	0.0016	0.0019
24	3123K	0.0000	0.0008	0.0009	0.0011	0.0013	0.0016	0.0020
25	3086K	0.0000	0.0007	0.0010	0.0013	0.0013	0.0015	0.0019

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 55°C, I_f = 240mA; $T_s \geq$ 53°C and $T_{air} \geq$ 50°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3148K	3.409	3.459	3.468	3.474	3.482	3.483	3.492
2	3078K	3.437	3.509	3.521	3.530	3.533	3.540	3.547
3	3134K	3.437	3.487	3.495	3.501	3.506	3.510	3.518
4	3126K	3.408	3.458	3.468	3.474	3.479	3.484	3.493
5	3124K	3.440	3.489	3.505	3.509	3.515	3.517	3.527
6	3161K	3.417	3.462	3.469	3.476	3.475	3.477	3.489
7	3101K	3.449	3.506	3.515	3.526	3.529	3.530	3.540
8	3081K	3.418	3.464	3.472	3.476	3.478	3.479	3.488
9	3102K	3.431	3.481	3.488	3.497	3.500	3.503	3.513
10	3100K	3.433	3.496	3.508	3.513	3.519	3.522	3.533
11	3085K	3.431	3.482	3.493	3.497	3.502	3.506	3.512
12	3133K	3.413	3.468	3.477	3.480	3.487	3.492	3.502
13	3097K	3.424	3.477	3.484	3.490	3.496	3.496	3.505
14	3120K	3.429	3.489	3.496	3.504	3.510	3.514	3.524
15	3084K	3.465	3.568	3.586	3.594	3.605	3.608	3.621
16	3128K	3.427	3.477	3.489	3.493	3.499	3.503	3.507
17	3119K	3.437	3.501	3.513	3.519	3.522	3.525	3.533
18	3099K	3.473	3.575	3.589	3.601	3.605	3.606	3.623
19	3097K	3.434	3.483	3.490	3.498	3.503	3.503	3.512
20	3096K	3.417	3.470	3.481	3.483	3.487	3.491	3.504
21	3136K	3.429	3.477	3.490	3.497	3.500	3.500	3.512
22	3113K	3.434	3.487	3.496	3.502	3.507	3.512	3.517
23	3088K	3.419	3.480	3.487	3.498	3.502	3.505	3.518
24	3123K	3.422	3.472	3.483	3.491	3.494	3.496	3.507
25	3086K	3.420	3.472	3.481	3.486	3.487	3.491	3.501

Luminous Flux [lm] data for tested units
$T_s = T_{air} = 85°C$, $I_f = 240mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3122K	78.369	78.586	77.938	78.130	77.389	76.410	75.926
2	3104K	77.350	77.797	77.196	77.360	76.760	75.777	75.447
3	3123K	78.361	78.803	78.305	78.545	78.053	77.289	76.822
4	3122K	78.893	79.189	78.615	78.695	78.140	77.007	76.488
5	3119K	77.139	77.558	77.140	77.340	76.860	76.089	75.219
6	3085K	78.690	79.128	78.543	78.510	77.833	77.150	76.593
7	3139K	78.302	79.023	78.475	78.769	78.500	77.744	77.240
8	3116K	78.313	79.115	78.608	78.669	78.215	77.732	77.226
9	3133K	77.552	78.045	77.417	77.537	77.121	76.381	76.265
10	3124K	78.671	78.766	78.031	78.166	77.785	76.869	76.446
11	3111K	78.586	79.504	78.973	78.795	78.507	77.850	77.649
12	3090K	78.730	79.074	78.497	78.607	78.378	77.874	77.758
13	3120K	77.462	78.109	77.565	77.780	77.387	76.866	76.800
14	3121K	77.959	78.422	77.997	78.157	77.675	77.178	76.938
15	3115K	78.245	78.765	78.340	78.426	77.846	77.165	76.635
16	3136K	77.905	78.177	77.778	77.757	77.078	76.384	76.054
17	3125K	77.259	77.525	77.055	77.299	76.722	76.152	75.950
18	3145K	77.644	77.241	76.688	76.706	76.147	75.636	75.275
19	3069K	77.074	77.377	77.001	77.216	76.599	76.263	75.929
20	3089K	76.936	76.724	76.289	76.373	75.733	75.304	75.024
21	3130K	77.752	77.640	77.254	77.568	76.994	76.358	76.101
22	3111K	76.607	77.355	77.064	77.380	76.790	76.326	76.001
23	3120K	78.313	78.710	78.284	78.341	77.616	76.480	76.008
24	3098K	77.388	77.394	77.080	77.248	76.514	75.577	75.014
25	3118K	77.995	77.871	77.443	77.409	76.683	75.930	75.424

Normalized Luminous Flux data for tested units
$T_s = T_{air} = 85°C$, $I_f = 240mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3122K	1.000	1.003	0.994	0.997	0.987	0.975	0.969
2	3104K	1.000	1.006	0.998	1.000	0.992	0.980	0.975
3	3123K	1.000	1.006	0.999	1.002	0.996	0.986	0.980
4	3122K	1.000	1.004	0.996	0.997	0.990	0.976	0.970
5	3119K	1.000	1.005	1.000	1.003	0.996	0.986	0.975
6	3085K	1.000	1.006	0.998	0.998	0.989	0.980	0.973
7	3139K	1.000	1.009	1.002	1.006	1.003	0.993	0.986
8	3116K	1.000	1.010	1.004	1.005	0.999	0.993	0.986
9	3133K	1.000	1.006	0.998	1.000	0.994	0.985	0.983
10	3124K	1.000	1.001	0.992	0.994	0.989	0.977	0.972
11	3111K	1.000	1.012	1.005	1.003	0.998	0.991	0.988
12	3090K	1.000	1.004	0.997	0.998	0.996	0.989	0.988
13	3120K	1.000	1.008	1.001	1.004	0.999	0.992	0.991
14	3121K	1.000	1.006	1.000	1.003	0.996	0.990	0.987
15	3115K	1.000	1.007	1.001	1.002	0.995	0.986	0.979
16	3136K	1.000	1.003	0.998	0.998	0.989	0.980	0.976
17	3125K	1.000	1.003	0.997	1.001	0.993	0.986	0.983
18	3145K	1.000	0.995	0.988	0.988	0.981	0.974	0.969
19	3069K	1.000	1.004	0.999	1.002	0.994	0.989	0.985
20	3089K	1.000	0.997	0.992	0.993	0.984	0.979	0.975
21	3130K	1.000	0.999	0.994	0.998	0.990	0.982	0.979
22	3111K	1.000	1.010	1.006	1.010	1.002	0.996	0.992
23	3120K	1.000	1.005	1.000	1.000	0.991	0.977	0.971
24	3098K	1.000	1.000	0.996	0.998	0.989	0.977	0.969
25	3118K	1.000	0.998	0.993	0.992	0.983	0.974	0.967

CIE 1976 u' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 240mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3122K	0.2459	0.2450	0.2450	0.2451	0.2453	0.2455	0.2455
2	3104K	0.2466	0.2459	0.2459	0.2461	0.2463	0.2466	0.2465
3	3123K	0.2460	0.2451	0.2452	0.2454	0.2456	0.2458	0.2458
4	3122K	0.2457	0.2448	0.2449	0.2450	0.2452	0.2454	0.2454
5	3119K	0.2460	0.2450	0.2450	0.2452	0.2454	0.2456	0.2454
6	3085K	0.2469	0.2459	0.2460	0.2461	0.2463	0.2464	0.2462
7	3139K	0.2455	0.2447	0.2448	0.2449	0.2451	0.2452	0.2452
8	3116K	0.2462	0.2456	0.2457	0.2458	0.2460	0.2461	0.2460
9	3133K	0.2460	0.2450	0.2450	0.2450	0.2452	0.2453	0.2453
10	3124K	0.2456	0.2445	0.2444	0.2445	0.2447	0.2447	0.2446
11	3111K	0.2460	0.2453	0.2452	0.2453	0.2456	0.2457	0.2456
12	3090K	0.2470	0.2460	0.2459	0.2461	0.2463	0.2465	0.2464
13	3120K	0.2460	0.2454	0.2453	0.2454	0.2455	0.2456	0.2456
14	3121K	0.2460	0.2453	0.2454	0.2455	0.2457	0.2459	0.2458
15	3115K	0.2460	0.2454	0.2454	0.2455	0.2457	0.2459	0.2457
16	3136K	0.2452	0.2444	0.2444	0.2446	0.2448	0.2449	0.2448
17	3125K	0.2461	0.2453	0.2452	0.2453	0.2454	0.2456	0.2455
18	3145K	0.2451	0.2440	0.2440	0.2439	0.2441	0.2442	0.2440
19	3069K	0.2478	0.2471	0.2471	0.2472	0.2474	0.2476	0.2475
20	3089K	0.2471	0.2462	0.2462	0.2462	0.2462	0.2464	0.2463
21	3130K	0.2458	0.2450	0.2451	0.2453	0.2454	0.2455	0.2454
22	3111K	0.2463	0.2458	0.2458	0.2459	0.2462	0.2464	0.2464
23	3120K	0.2460	0.2453	0.2454	0.2455	0.2458	0.2459	0.2459
24	3098K	0.2466	0.2459	0.2459	0.2460	0.2463	0.2465	0.2464
25	3118K	0.2462	0.2454	0.2455	0.2454	0.2457	0.2459	0.2457

CIE 1976 v' data for tested units
$T_s = T_{air} = 85°C$, $I_f = 240mA$; $T_s \geq 83°C$ and $T_{air} \geq 80°C$ in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3122K	0.5207	0.5216	0.5220	0.5225	0.5229	0.5232	0.5237
2	3104K	0.5211	0.5219	0.5224	0.5229	0.5234	0.5237	0.5242
3	3123K	0.5203	0.5212	0.5217	0.5223	0.5226	0.5231	0.5236
4	3122K	0.5213	0.5223	0.5227	0.5233	0.5237	0.5239	0.5244
5	3119K	0.5208	0.5213	0.5216	0.5221	0.5224	0.5226	0.5228
6	3085K	0.5224	0.5231	0.5235	0.5239	0.5242	0.5244	0.5246
7	3139K	0.5197	0.5204	0.5208	0.5213	0.5216	0.5218	0.5220
8	3116K	0.5204	0.5211	0.5215	0.5219	0.5222	0.5224	0.5227
9	3133K	0.5190	0.5195	0.5198	0.5203	0.5206	0.5208	0.5212
10	3124K	0.5217	0.5221	0.5224	0.5229	0.5232	0.5234	0.5238
11	3111K	0.5220	0.5228	0.5232	0.5235	0.5238	0.5241	0.5245
12	3090K	0.5215	0.5221	0.5224	0.5228	0.5231	0.5234	0.5238
13	3120K	0.5209	0.5215	0.5218	0.5223	0.5226	0.5228	0.5233
14	3121K	0.5208	0.5214	0.5217	0.5222	0.5225	0.5227	0.5230
15	3115K	0.5216	0.5223	0.5228	0.5232	0.5234	0.5237	0.5240
16	3136K	0.5214	0.5221	0.5225	0.5228	0.5231	0.5233	0.5237
17	3125K	0.5200	0.5205	0.5208	0.5213	0.5216	0.5219	0.5222
18	3145K	0.5205	0.5209	0.5211	0.5216	0.5218	0.5220	0.5223
19	3069K	0.5215	0.5220	0.5224	0.5228	0.5230	0.5233	0.5236
20	3089K	0.5211	0.5215	0.5218	0.5222	0.5224	0.5227	0.5230
21	3130K	0.5200	0.5204	0.5208	0.5213	0.5216	0.5218	0.5221
22	3111K	0.5209	0.5217	0.5220	0.5225	0.5228	0.5230	0.5233
23	3120K	0.5210	0.5220	0.5225	0.5231	0.5234	0.5237	0.5240
24	3098K	0.5215	0.5224	0.5229	0.5234	0.5238	0.5241	0.5246
25	3118K	0.5203	0.5212	0.5218	0.5222	0.5226	0.5233	0.5235

Delta u'v' data for tested units

$T_s = T_{air}$ = 85°C, I_f = 240mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3122K	0.0000	0.0013	0.0016	0.0020	0.0023	0.0025	0.0030
2	3104K	0.0000	0.0011	0.0015	0.0019	0.0023	0.0026	0.0031
3	3123K	0.0000	0.0013	0.0016	0.0021	0.0023	0.0028	0.0033
4	3122K	0.0000	0.0013	0.0016	0.0021	0.0025	0.0026	0.0031
5	3119K	0.0000	0.0011	0.0013	0.0015	0.0017	0.0018	0.0021
6	3085K	0.0000	0.0012	0.0014	0.0017	0.0019	0.0021	0.0023
7	3139K	0.0000	0.0011	0.0013	0.0017	0.0019	0.0021	0.0023
8	3116K	0.0000	0.0009	0.0012	0.0016	0.0018	0.0020	0.0023
9	3133K	0.0000	0.0011	0.0013	0.0016	0.0018	0.0019	0.0023
10	3124K	0.0000	0.0012	0.0014	0.0016	0.0017	0.0019	0.0023
11	3111K	0.0000	0.0011	0.0014	0.0017	0.0018	0.0021	0.0025
12	3090K	0.0000	0.0012	0.0014	0.0016	0.0017	0.0020	0.0024
13	3120K	0.0000	0.0008	0.0011	0.0015	0.0018	0.0019	0.0024
14	3121K	0.0000	0.0009	0.0011	0.0015	0.0017	0.0019	0.0022
15	3115K	0.0000	0.0009	0.0013	0.0017	0.0018	0.0021	0.0024
16	3136K	0.0000	0.0011	0.0014	0.0015	0.0017	0.0019	0.0023
17	3125K	0.0000	0.0009	0.0012	0.0015	0.0017	0.0020	0.0023
18	3145K	0.0000	0.0012	0.0013	0.0016	0.0016	0.0017	0.0021
19	3069K	0.0000	0.0009	0.0011	0.0014	0.0016	0.0018	0.0021
20	3089K	0.0000	0.0010	0.0011	0.0014	0.0016	0.0017	0.0021
21	3130K	0.0000	0.0009	0.0011	0.0014	0.0016	0.0018	0.0021
22	3111K	0.0000	0.0009	0.0012	0.0016	0.0019	0.0021	0.0024
23	3120K	0.0000	0.0012	0.0016	0.0022	0.0024	0.0027	0.0030
24	3098K	0.0000	0.0011	0.0016	0.0020	0.0023	0.0026	0.0031
25	3118K	0.0000	0.0012	0.0017	0.0021	0.0024	0.0030	0.0032

Forward Voltage [V] data for tested units

$T_s = T_{air}$ = 85°C, I_f = 240mA; $T_s \geq$ 83°C and $T_{air} \geq$ 80°C in compliance with LM-80-08

	CCT (t=0)	0hrs	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs
1	3122K	3.429	3.498	3.513	3.523	3.536	3.540	3.545
2	3104K	3.431	3.492	3.503	3.512	3.528	3.535	3.536
3	3123K	3.435	3.490	3.501	3.512	3.520	3.526	3.531
4	3122K	3.428	3.494	3.507	3.514	3.528	3.534	3.539
5	3119K	3.448	3.500	3.510	3.516	3.530	3.529	3.534
6	3085K	3.438	3.504	3.518	3.522	3.536	3.544	3.544
7	3139K	3.418	3.475	3.486	3.493	3.507	3.506	3.515
8	3116K	3.429	3.499	3.514	3.519	3.535	3.538	3.538
9	3133K	3.432	3.486	3.497	3.506	3.517	3.518	3.525
10	3124K	3.427	3.472	3.479	3.485	3.495	3.497	3.502
11	3111K	3.425	3.474	3.481	3.490	3.499	3.501	3.507
12	3090K	3.433	3.492	3.505	3.508	3.522	3.526	3.535
13	3120K	3.411	3.452	3.460	3.466	3.479	3.475	3.485
14	3121K	3.435	3.489	3.500	3.505	3.516	3.522	3.524
15	3115K	3.426	3.499	3.513	3.518	3.533	3.539	3.540
16	3136K	3.430	3.486	3.494	3.501	3.509	3.516	3.518
17	3125K	3.441	3.492	3.502	3.508	3.516	3.520	3.523
18	3145K	3.434	3.492	3.503	3.505	3.516	3.520	3.528
19	3069K	3.433	3.496	3.505	3.513	3.526	3.530	3.535
20	3089K	3.418	3.464	3.472	3.476	3.484	3.492	3.493
21	3130K	3.428	3.482	3.497	3.500	3.511	3.512	3.519
22	3111K	3.434	3.488	3.497	3.503	3.514	3.521	3.522
23	3120K	3.434	3.502	3.511	3.521	3.533	3.541	3.542
24	3098K	3.411	3.456	3.465	3.468	3.478	3.482	3.486
25	3118K	3.403	3.456	3.462	3.473	3.482	3.488	3.492

Company Information

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. Lumileds LUXEON LEDs are enabling never before possible applications in outdoor lighting, shop lighting, home lighting, digital imaging, display and automotive lighting.

Lumileds is a fully integrated supplier, producing core LED material in all three base colors, (red, green, blue) and white. 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, 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.lumileds.com.